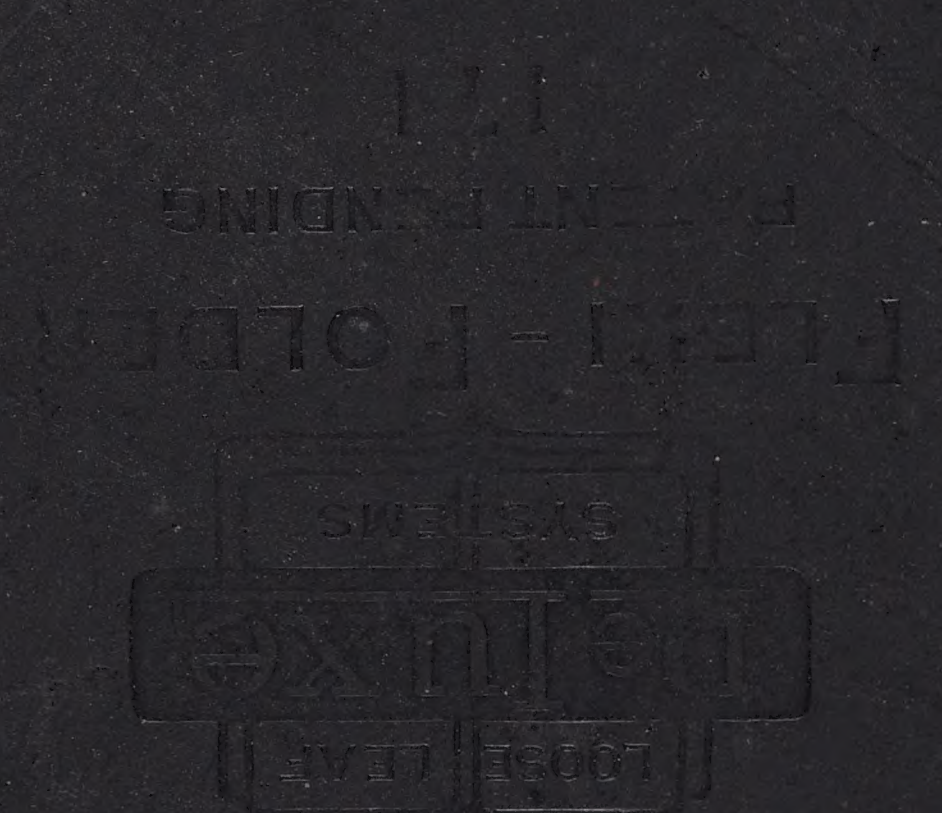




WN 155
P39
1925



AMERICAN COLLEGE OF RADIOLOGY
FOUNDATION

PENGELLY X-RAY COMPANY

MINNEAPOLIS

220 LA SALLE BUILDING

PHONE: ATLANTIC 1754

MILWAUKEE

FOURTEENTH AND WELLS STREET

PHONE: GRAND 4669



ACME-INTERNATIONAL - X-Ray Apparatus
BURDICK - Light Therapy Apparatus
HIGH TENSION CO. - Physiotherapy Apparatus
MORSE WAVE - Generators

FOREWORD.

The purpose of this book is to show the plans of some X-Ray installations in the Northwest. These plans were all drawn to scale and the proper wiring, outlet boxes, conduits, etc., specified before the equipment was installed. Copies of the specifications and plans were available for the workmen and to secure bids on the work.

These plans were made by members of our engineering service department, all of whom have had many years' practical experience.

This service is offered to any physician, architect or hospital without cost or obligation.

P E N G E L L Y X - R A Y C O M P A N Y .

220 LaSalle Bldg.,
Minneapolis,
Minn.
At. 1754.

14th & Wells Streets,
Milwaukee,
Wis.
Grand 4669.

"WORK WELL PLANNED IS ONE HALF DONE."

MSS
1697 B
SCD/KB



GLENDIVE, MONTANA



TACOMA, WASHINGTON

NORTHERN PACIFIC
BENEFICIAL ASSOCIATION HOSPITALS



ST. PAUL, MINNESOTA



MISSOULA, MONTANA

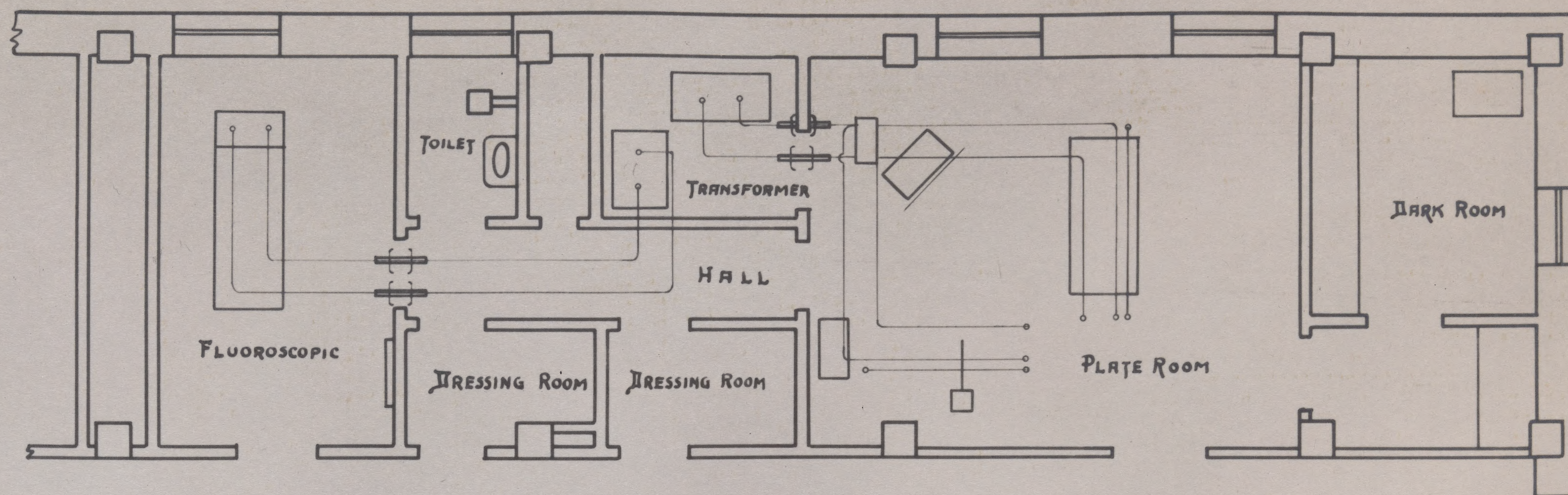


GLEN LAKE SANATORIUM,
OAK TERRACE, MINN.



IN AN EMERGENCY, C

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, -



CORRIDOR

EQUIPMENT

150 K.V. X-RAY GENERATOR
 No. 3 BUCKEY TABLE & No 1. STAND
 FLAT BUCKEY DIAPHRAGM
 MICRO TIME SWITCH
 X-R-V PLATE CHANGER
 SPHERE GAP
 No. 1 STAND & MAGNETIC SHIFT
 CORONALES TUBING AERIALS

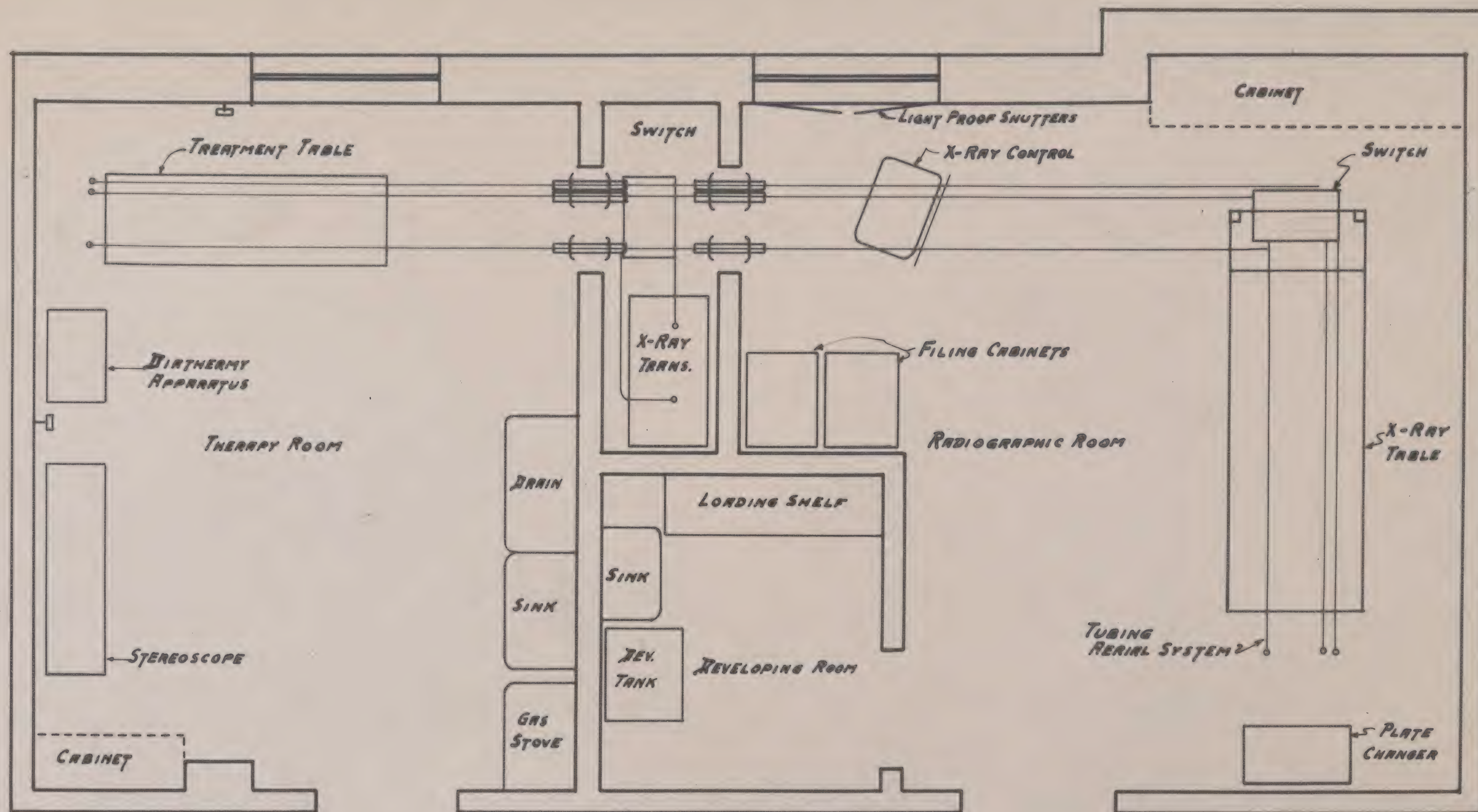
FILM FILE

STEREOSCOPE

PLAN
 SCALE $\frac{1}{4}$ " = 1'-0"

GLEN LAKE SANATORIUM
 HOPKINS, MINN.

PENGELLY X-RAY CO.
 MINNEAPOLIS- MILWAUKEE



CORRIDOR

EQUIPMENT
 150 K.V. X-RAY GENERATOR
 X-R.V. PLATE CHANGER
 MICRO TIME SWITCH
 STEREOSCOPE
 SPHERE GAP
 TUBULAR AERIAL
 STANDARD JUNIOR DIATHERMY MACHINE

SCALE $\frac{1}{4}$ " = 1'-0"

ABBOTT HOSPITAL
 MINNEAPOLIS, MINN.

PENGELLY X-RAY CO.
 MINNEAPOLIS - MILWAUKEE.

IF IT IS USED FOR X-RAY, PENGELLY SERVICES IT.

1882-1883

1882-1883

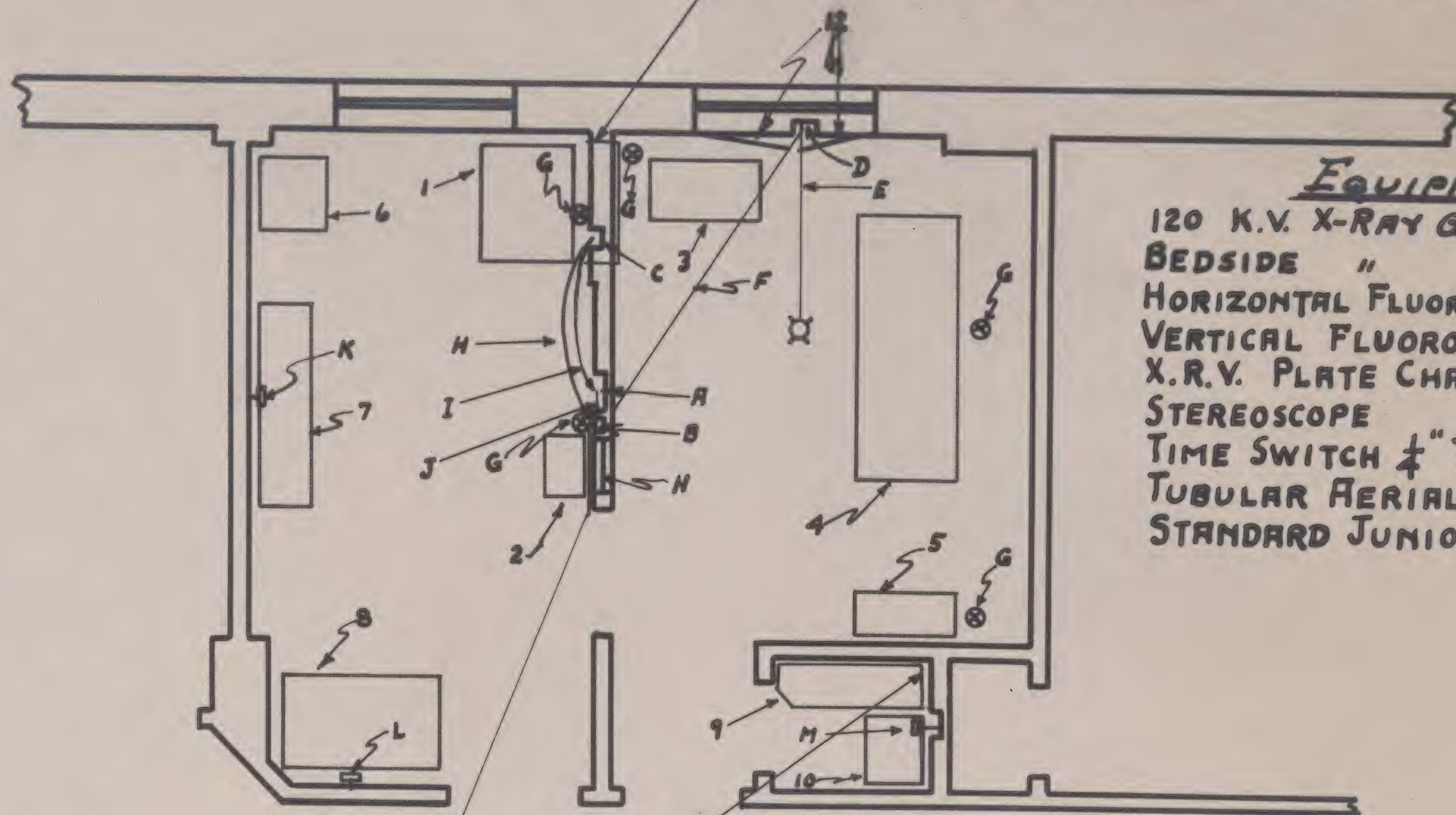
ASBURY HOSPITAL,
MINNEAPOLIS.



PENGELLY SERVICE CONSIDERS YOUR GOOD WILL ITS GREATEST ASSET.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.

*This partition to be clear of Electrical grounds
from ceiling to four feet below in space indicated.*



EQUIPMENT

120 K.V. X-RAY GENERATOR
BEDSIDE " "
HORIZONTAL FLUOROSCOPIC TABLE
VERTICAL FLUOROSCOPE
X.R.V. PLATE CHANGER
STEREOSCOPE
TIME SWITCH $\frac{1}{4}$ " TYPE
TUBULAR AERIAL
STANDARD JUNIOR DIATHERY
MACHINE

*Sheet lead $2\frac{1}{2}$ lbs. to the foot
6 feet high.*

ASBURY METHODIST HOSPITAL
MINNEAPOLIS, MINN.

SCALE $\frac{1}{4}" = 1'-0"$

PENGELLY X-RAY CO.
MINNEAPOLIS-MILWAUKEE.

NO EQUIPMENT TOO SMALL OR TOO LARGE FOR PENGELLY SERVICE.

1871-1872

Blank page with faint horizontal lines and three binder holes on the right side.

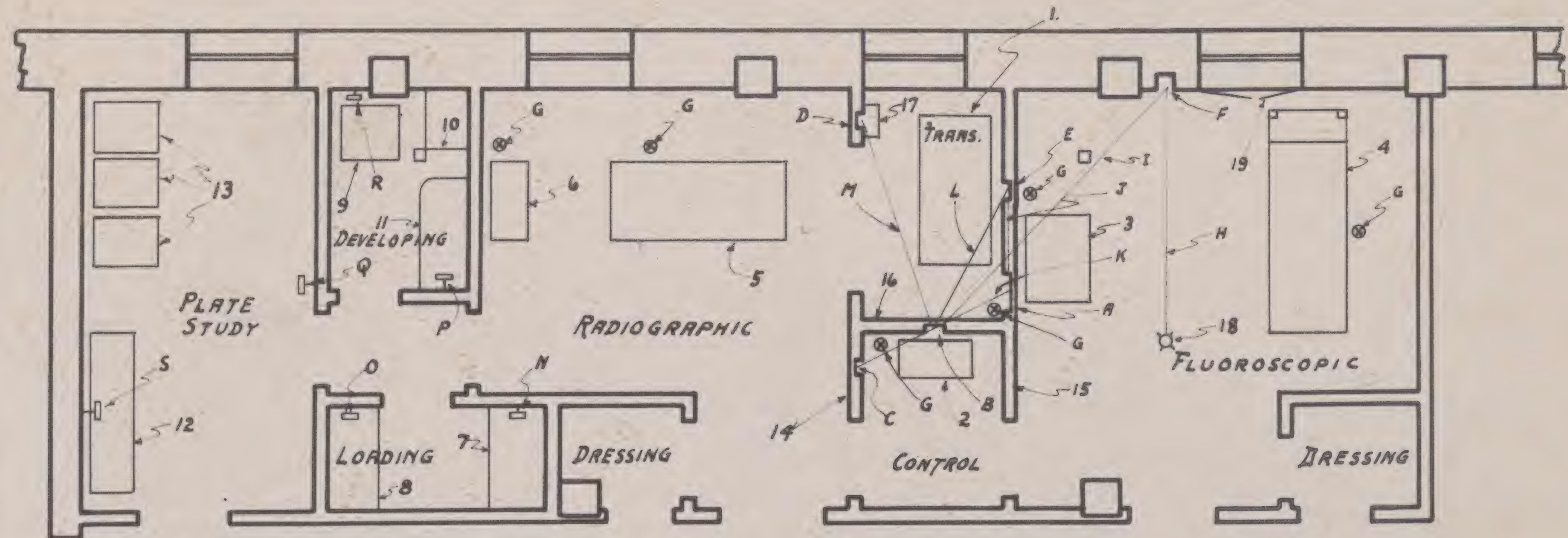
1871-1872

FAIRVIEW HOSPITAL,
MINNEAPOLIS.



THE YOUNGEST MACHINES - AND USED BY THE OLDEST AND LEADING HOSPITALS.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



CORRIDOR
SCALE $\frac{1}{4}" = 1'-0"$

EQUIPMENT
BEDSIDE X-RAY UNIT
BUCKY DIAPHRAGM TABLE
STEREOSCOPE
TUBULAR AERIAL

FAIRVIEW HOSPITAL
MINNEAPOLIS, MINNESOTA.

PENGELLY X-RAY CO.
MINNEAPOLIS-MILWAUKEE.

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

MINNEAPOLIS GENERAL HOSPITAL.



SOME MANUFACTURERS RECOMMEND POINT GAP RECTIFIERS AND SPHERE GAP MEASURING DEVICES. PENGELLY RECOMMENDS SPHERES WHEREVER POSSIBLE.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.

ST. BARNABAS HOSPITAL,
MINNEAPOLIS.



SPHERE TYPE CORONALESS RECTIFIED MACHINES HOLD THE RECORDS
FOR LONGEST TUBE LIFE.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



*St. Luke's Hospital,
Duluth, Minn.
65503*

RECOMMENDATIONS OF UNBIASED ENGINEERS AND PHYSICISTS HAVE
ALWAYS BEEN ACME-INTERNATIONAL CORONALESS EQUIPMENT.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



WHEN YOU WANT IT IN A HURRY, WRITE OR WIRE PENGELLY.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



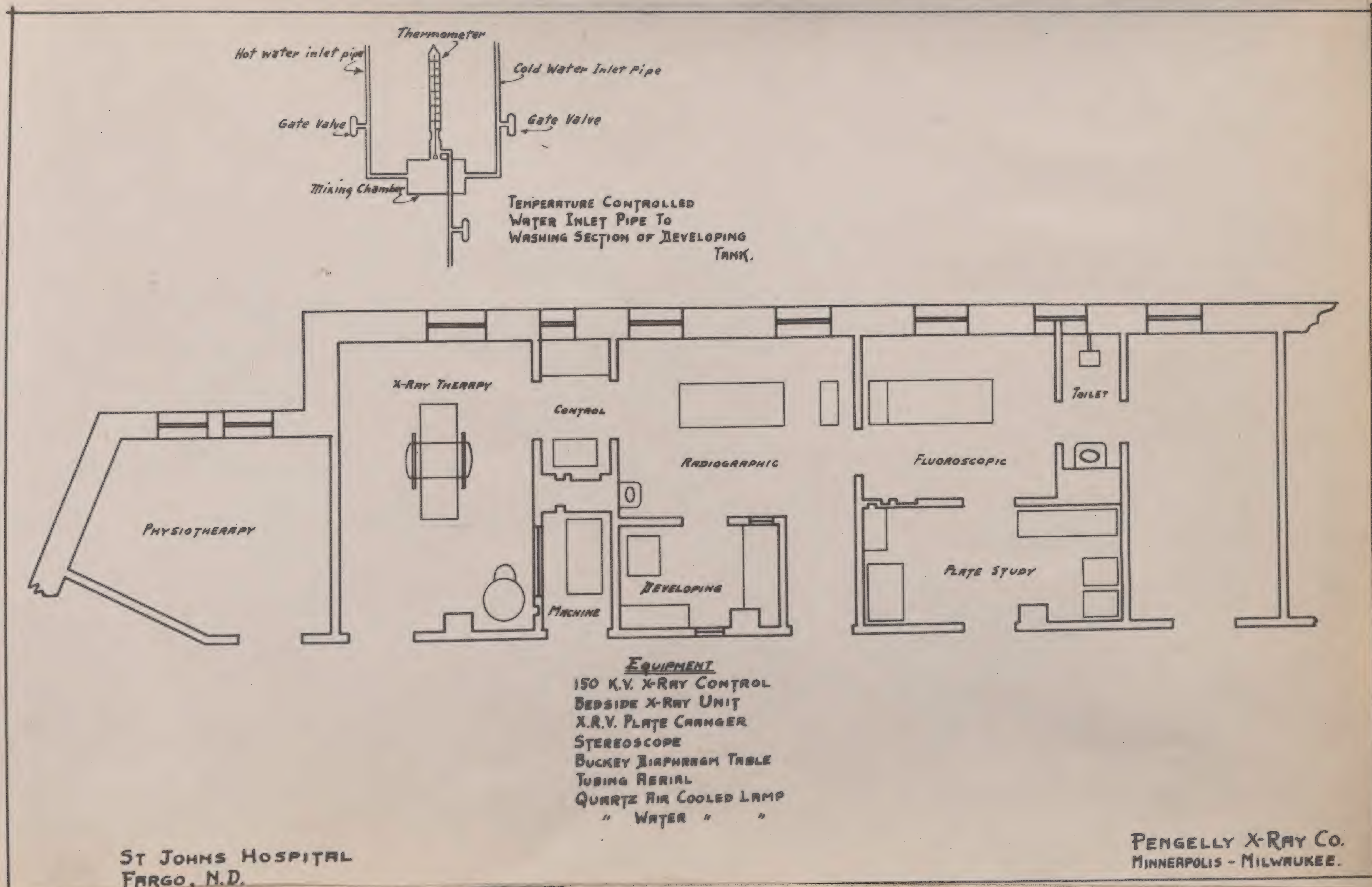
A COMBINATION HARD TO EQUAL - CORONALESS PRECISION X-RAY EQUIPMENT
AND PENGELLY SERVICE.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.

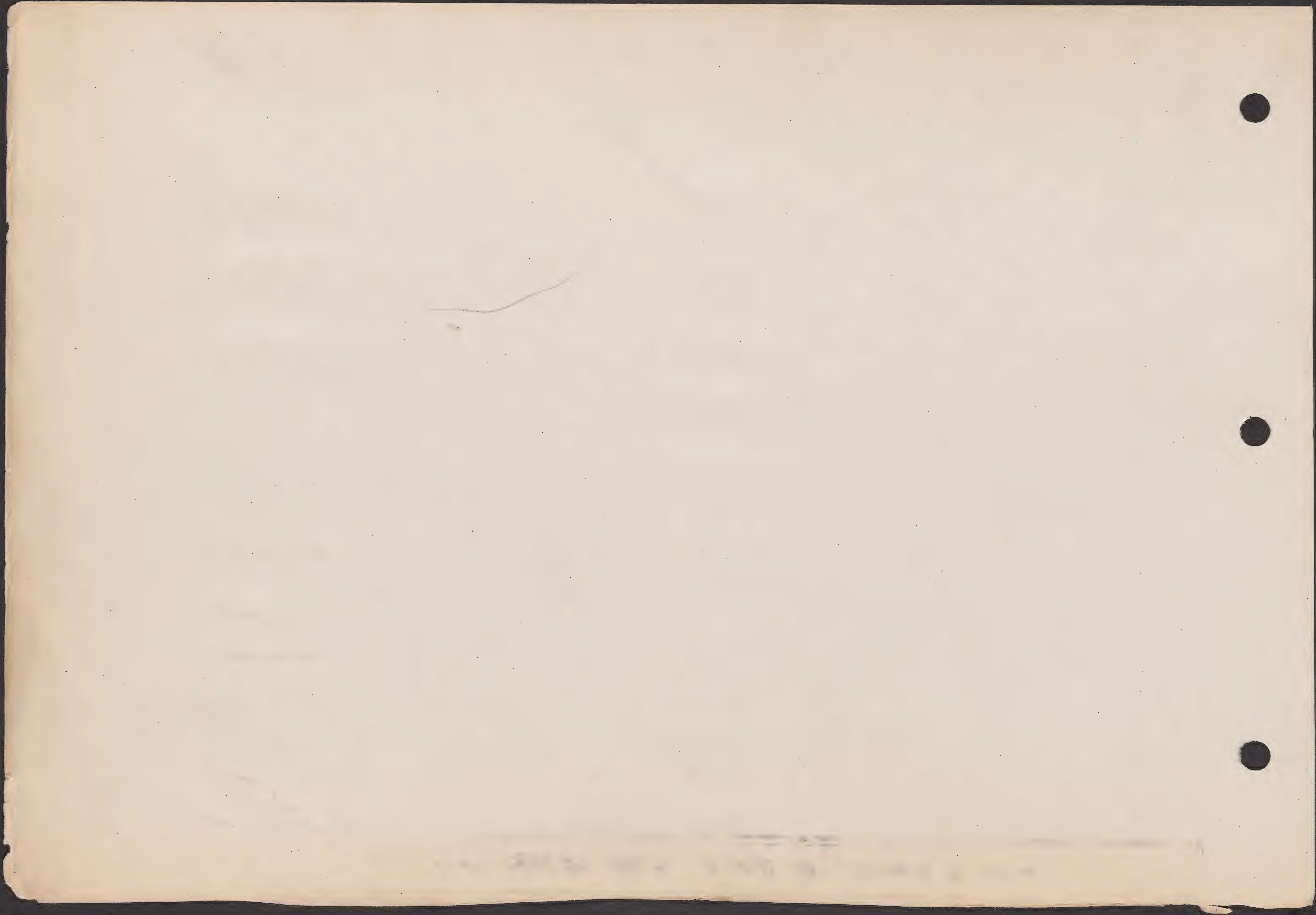


YOUR LOCAL DEALER MAY HAVE ONE ARTICLE. PENGELLY SERVICE HAS THEM ALL.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



PENGELLY SERVICE ENDORSES ONLY EQUIPMENT WHICH HAS PROVED THE BEST AVAILABLE.

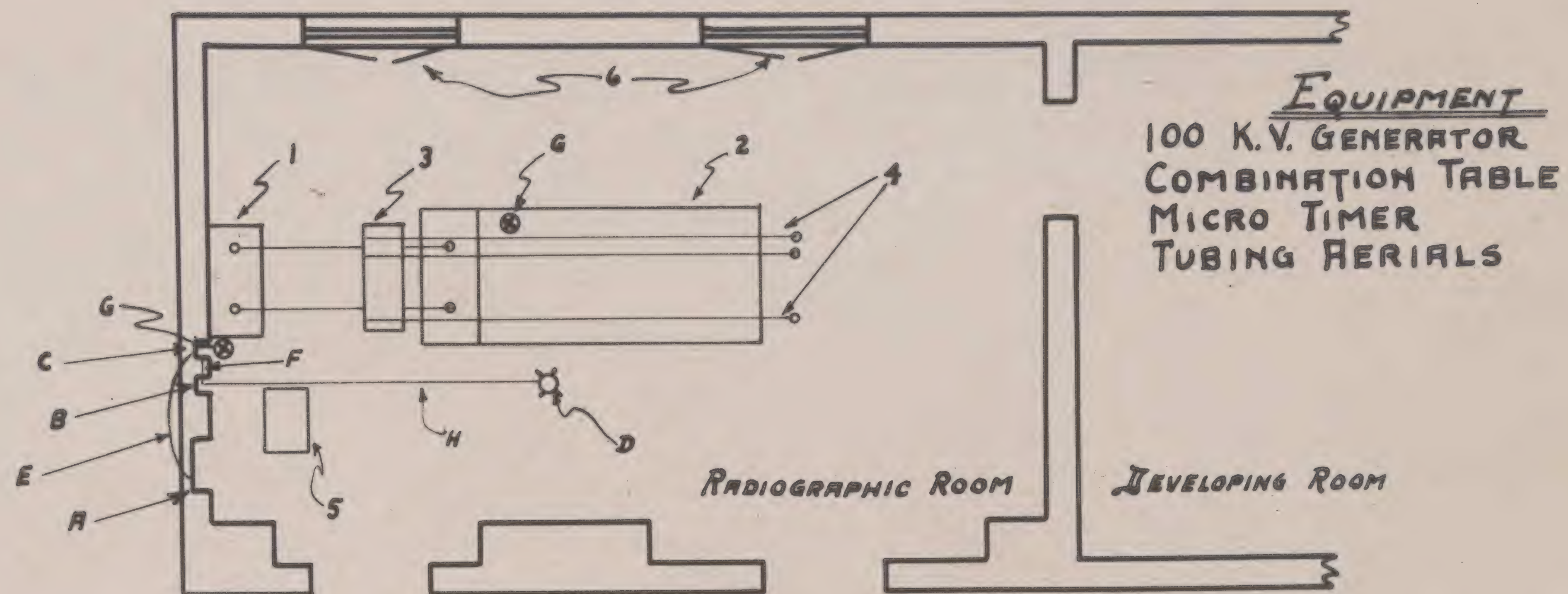




Ashton Memorial Hospital,
Pipestone, Minn.
65504

PENGELLY SERVICE ENDORSEMENT - A SEAL OF GUARANTEE.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



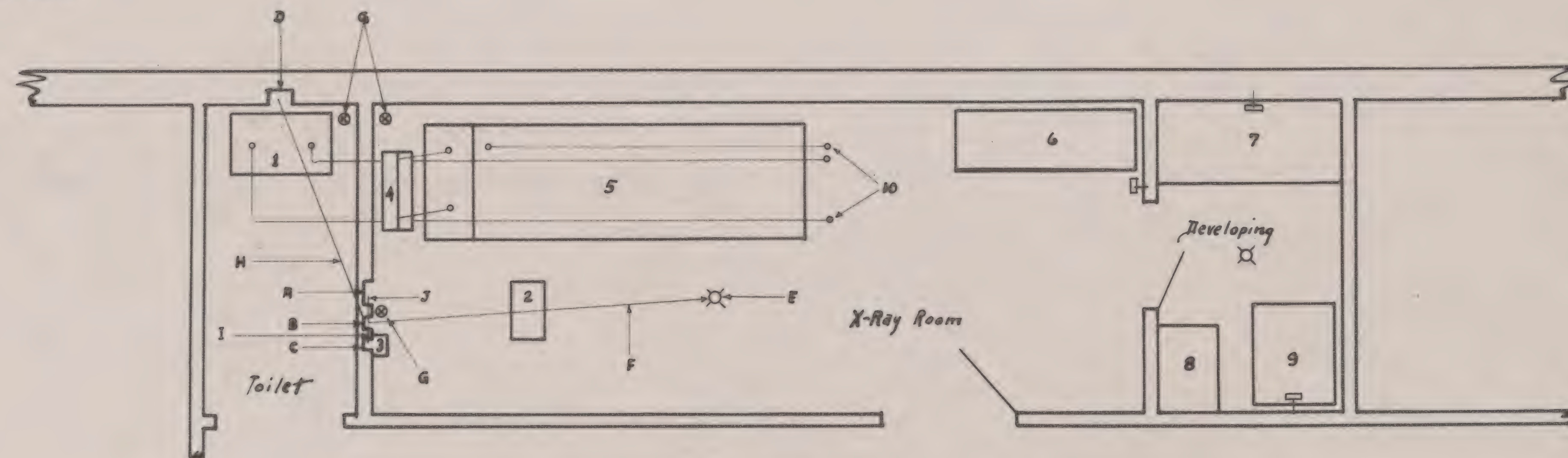
X-RAY DEPT.
 STATE SCHOOL FOR FEEBLE MINDED
 FARIBAULT MINN.

PENGELLY X-RAY CO.
 MINNEAPOLIS-MILWAUKEE

PENGELLY TRADEMARK IS A SEAL OF QUALITY AND DEPENDABILITY.



EQUIPMENT
 100 K. V. X-RAY GENERATOR
 #3 FLUOROSCOPIC AND RADIOGRAPHIC TABLE
 TUBULAR AERIAL
 MICRO-TIME SWITCH



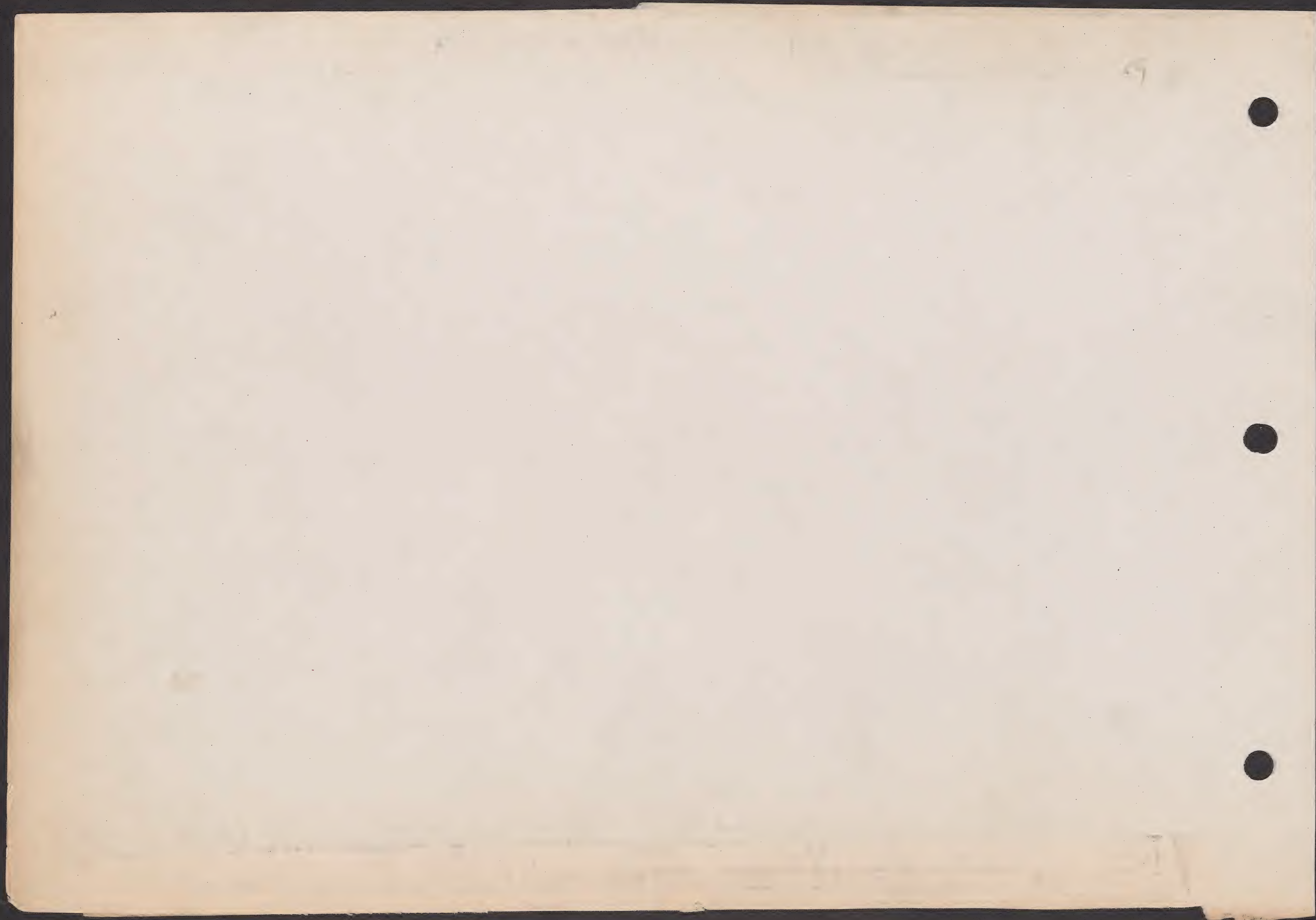
CORRIDOR

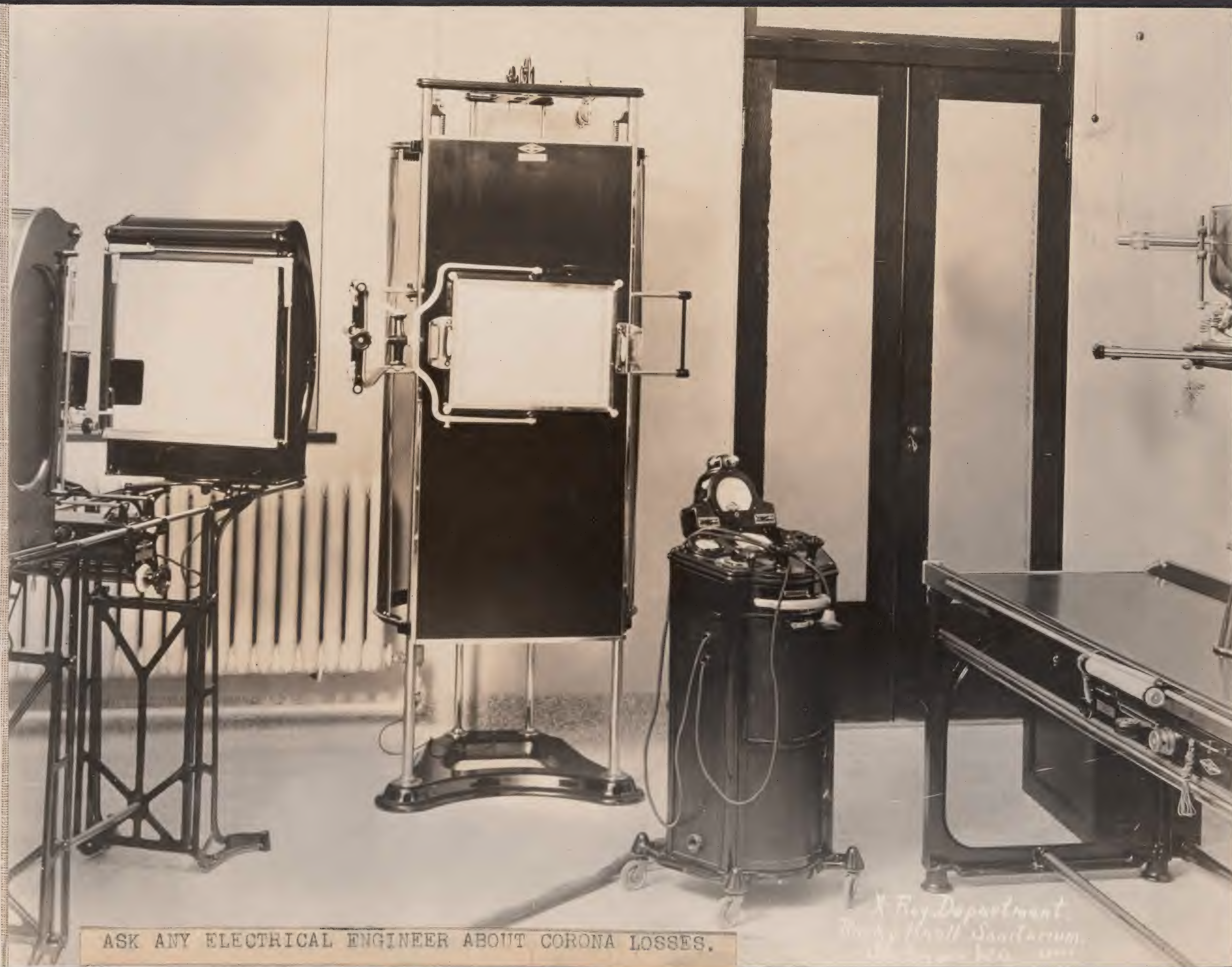
Scale $\frac{1}{2}" = 1'-0"$

Mrs. ROXDA F. ROBB
 X-RAY DEPT.

PENGELLY X-RAY CO.
 MINNEAPOLIS & MILWAUKEE

PENGELLY SERVICE INCLUDES X RAY MACHINES FROM \$375.00 to \$6500.00

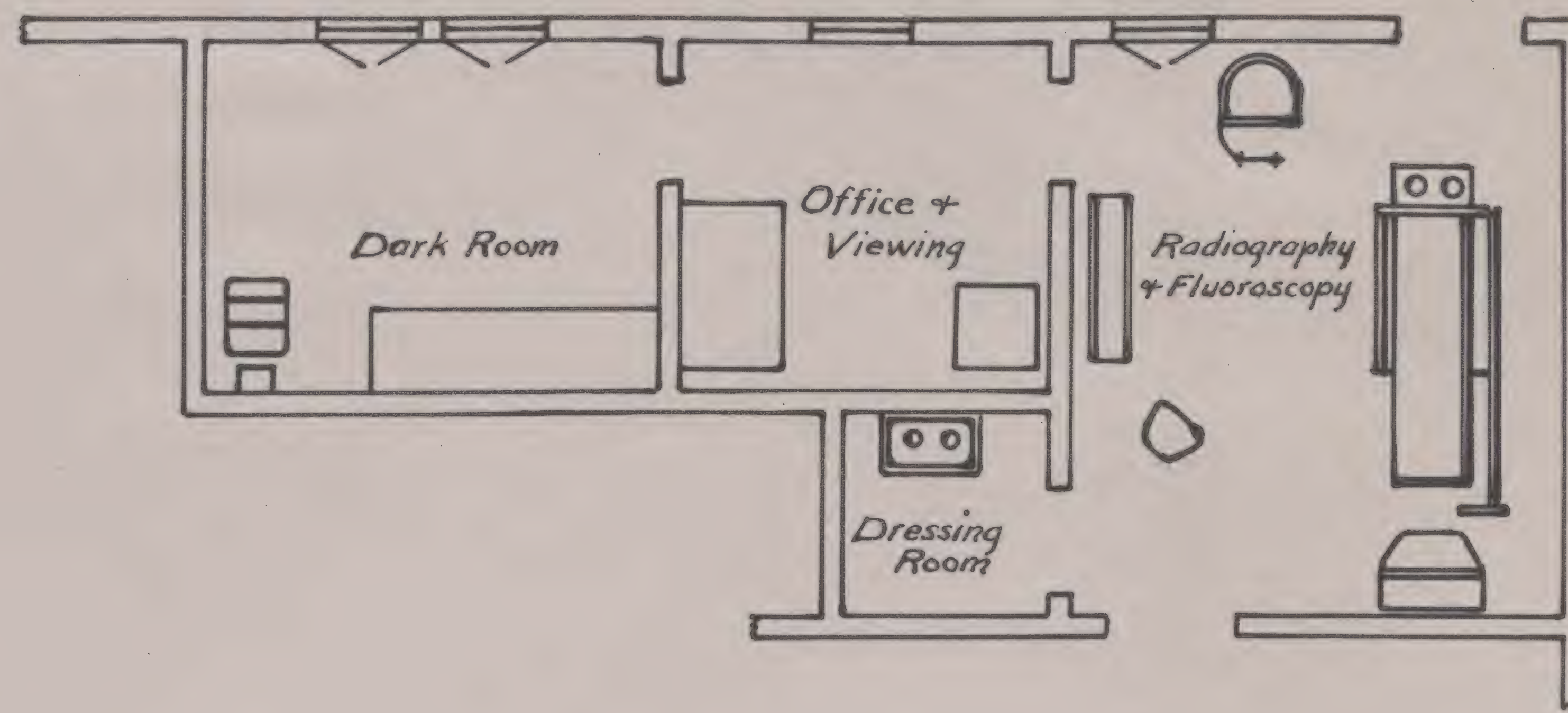




ASK ANY ELECTRICAL ENGINEER ABOUT CORONA LOSSES.

*X-Ray Department,
Woods Hall Sanatorium,
St. Louis, Mo.*

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



Equipment
 6-60 X-Ray Generator
 No. 3 Bucky Table
 Vertical Fluoroscope
 XRV Plate Changer
 Stereoscope
 Complete Tubular Overhead

ROCKY KNOLL SANATORIUM

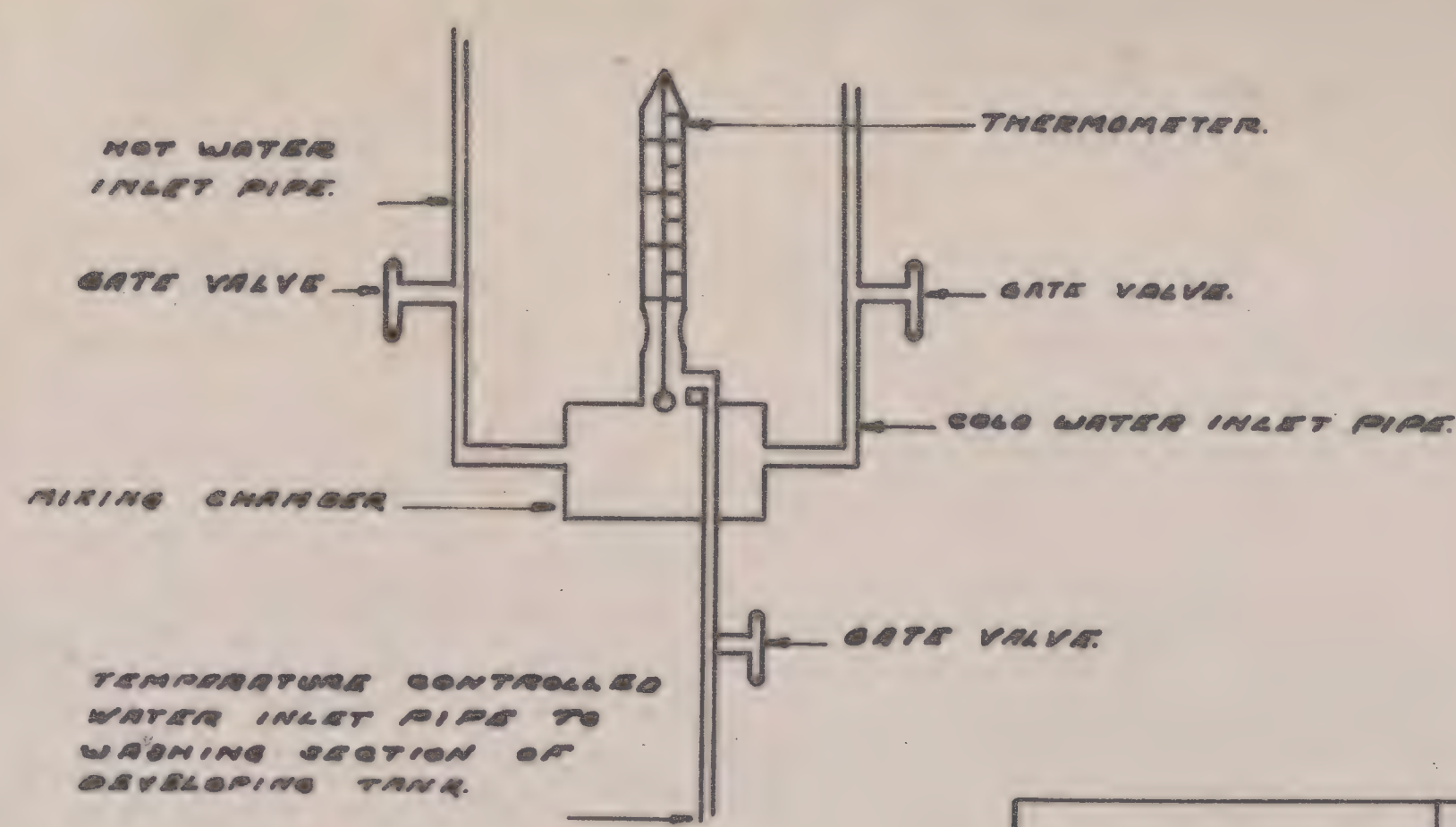
Plymouth Wis.

Scale 1/4" = 1 ft

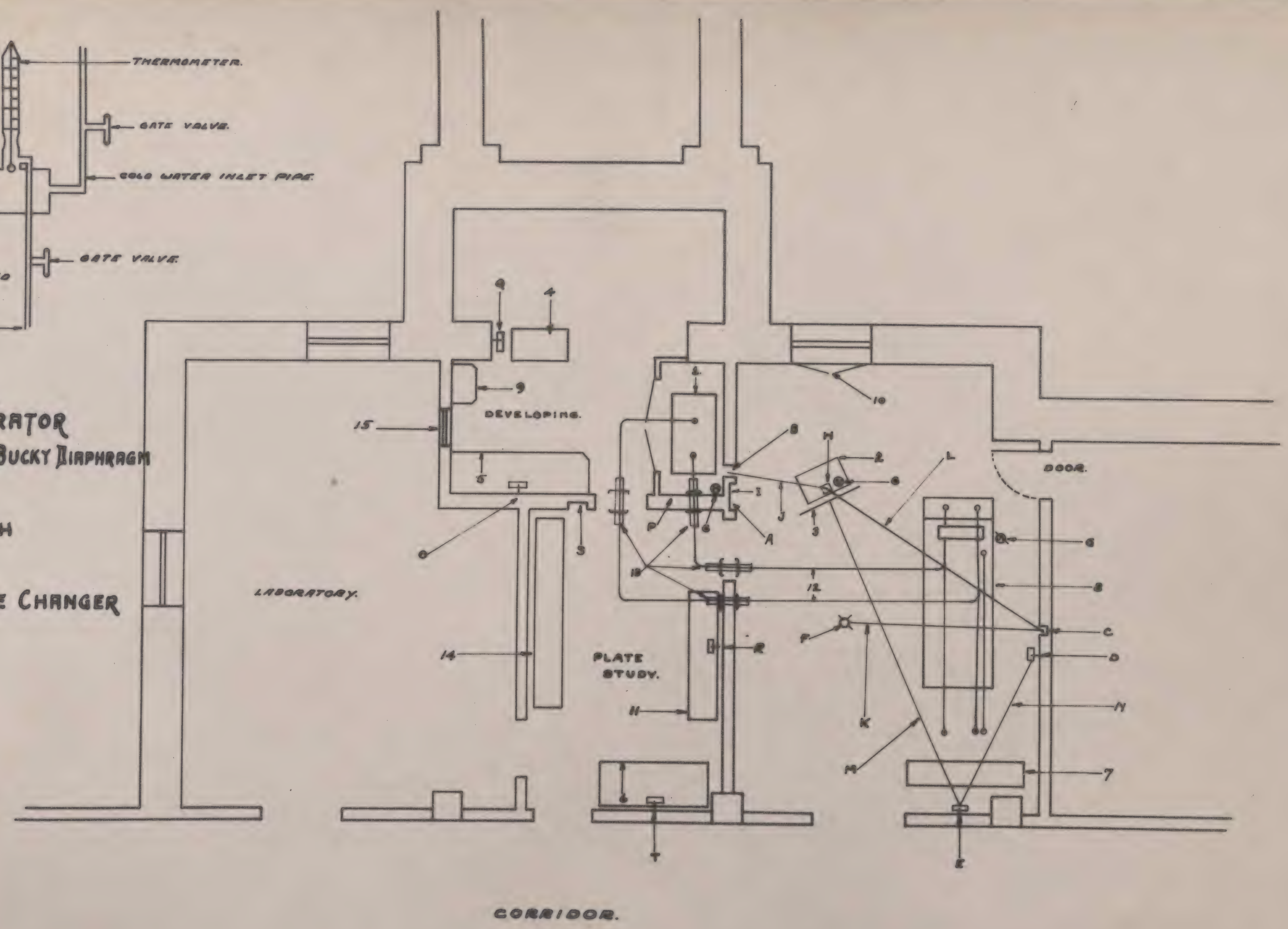
Feb 9-1926

Pengelly X-Ray Company
199-14th St.
Milwaukee Wis.





EQUIPMENT
 150-K.V. X-RAY GENERATOR
 COMBINATION TABLE WITH BUCKY DIAPHRAGM
 STEREOSCOPE
 MICRO-TIME SWITCH
 SPHERE GAP
 MOTOR DRIVEN PLATE CHANGER
 TUBING AERIALS

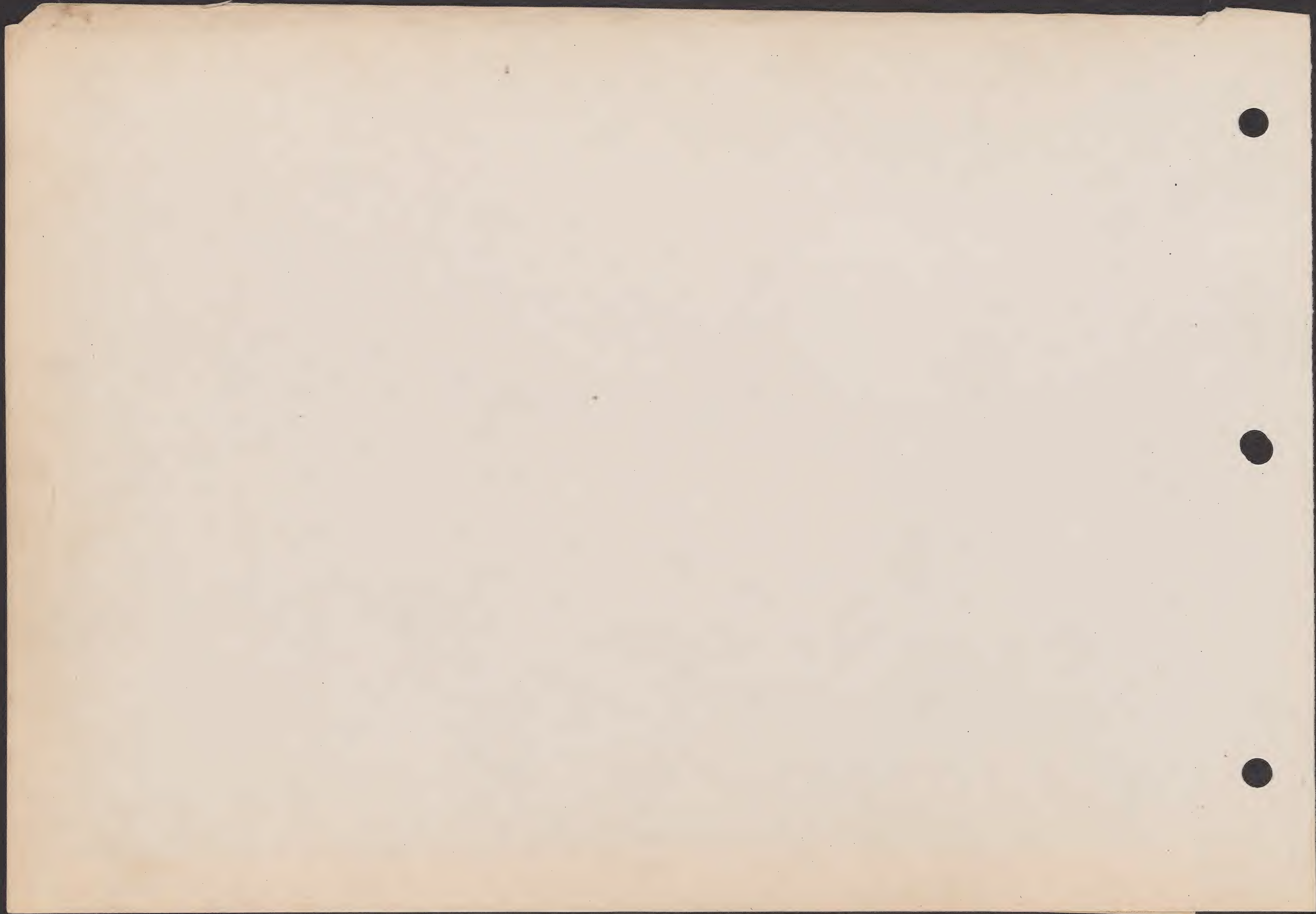


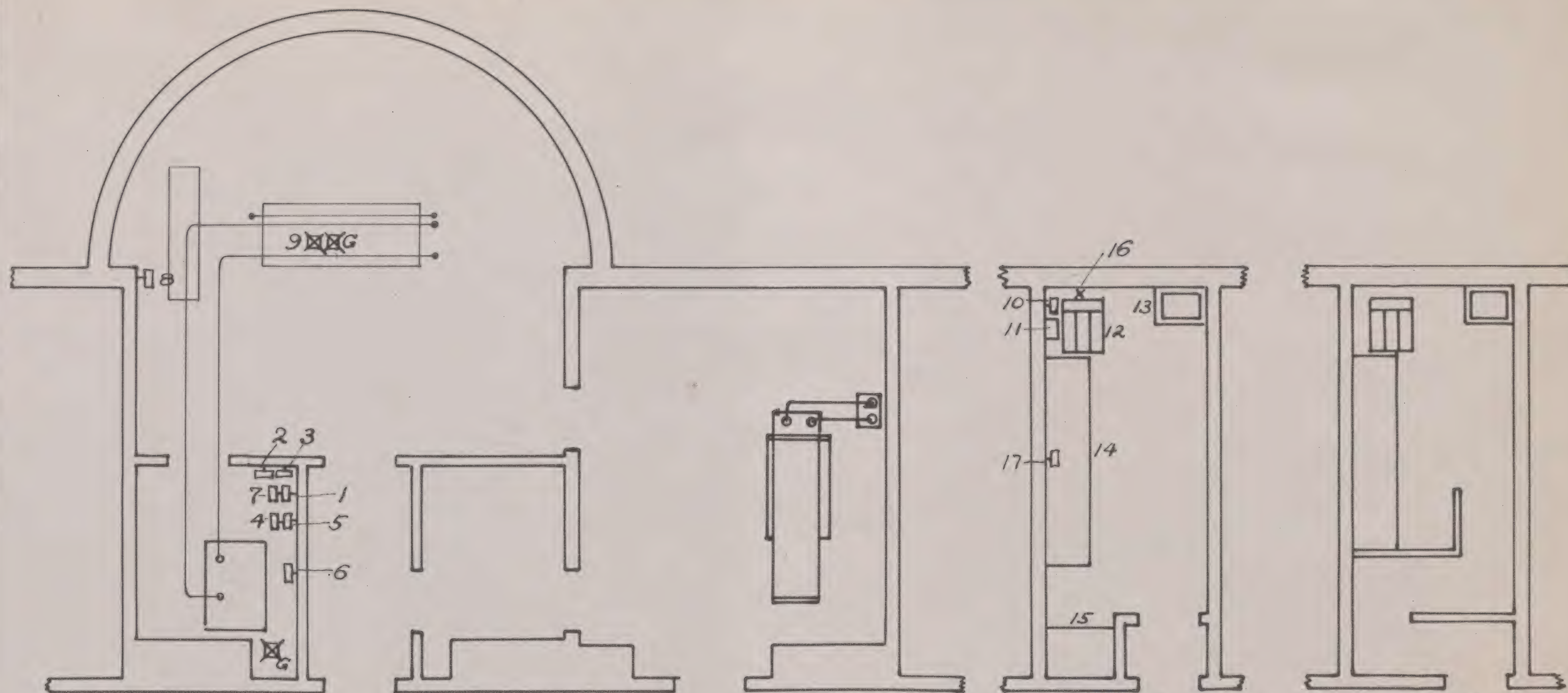
HOLY CROSS HOSPITAL.
 MERRILL, WIS.

SCALE $\frac{1}{4}$ " = 1'-0"
 CEILING 10'-0"

PENGELLY X-RAY CO.
 MINNEAPOLIS - MILWAUKEE.

ALL SUPPLY ORDERS ARE SHIPPED THE DAY THEY ARE RECEIVED.





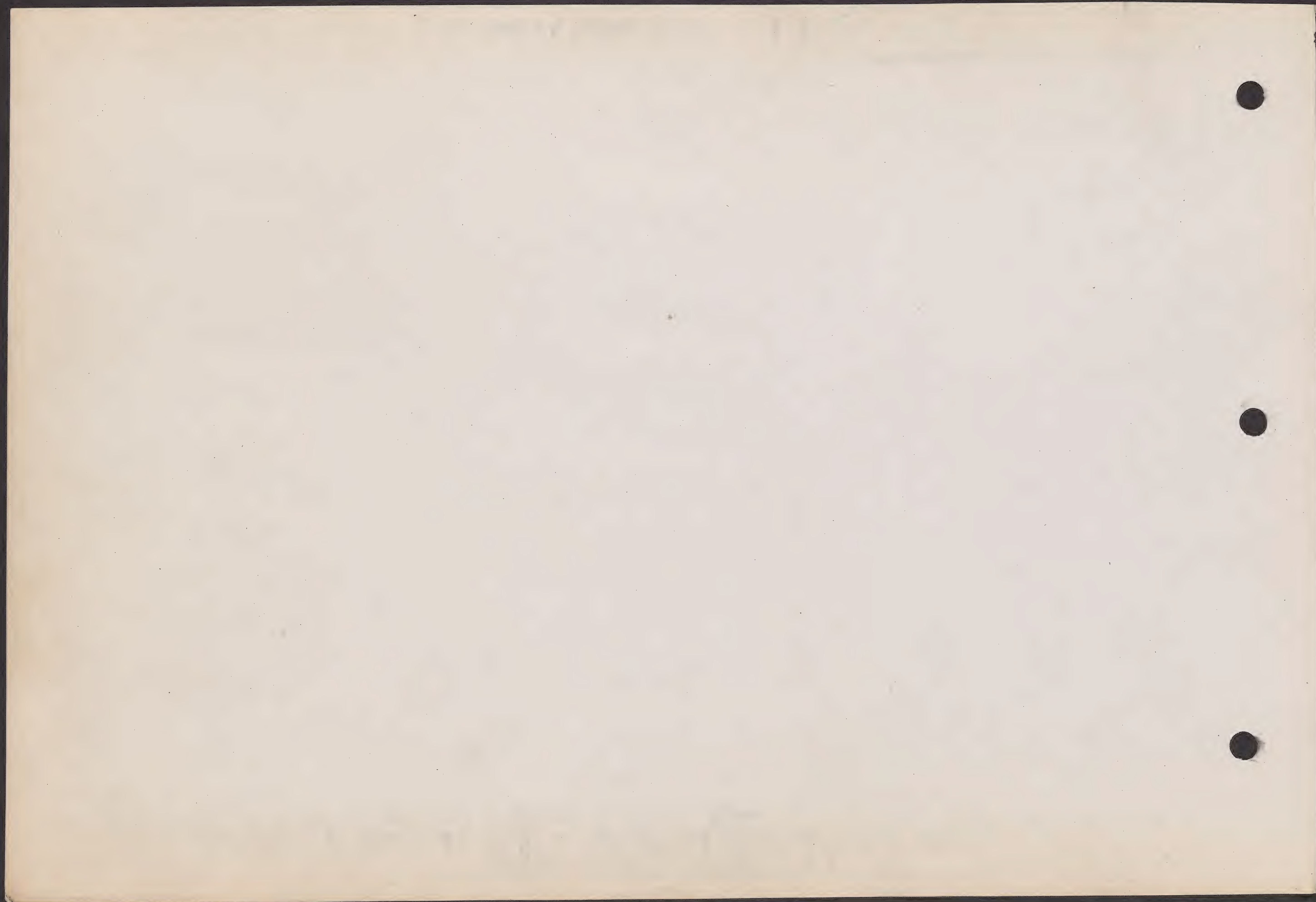
Plan A

Dark Room

Plan B

La Crosse Lutheran Hospital
March 30-1927 Scale - $\frac{1}{4}$ " - 1ft.

Pengelly X-Ray Company
Minneapolis - 220 La Salle Bldg.



BIRD'S EYE VIEW OF KOHLER PLANT, KOHLER, WIS.



CORONA DISPENSES OZONE AND NITROUS GASES. USE CORONALESS MACHINES,
OVERHEAD AERIAL AND ACCESSORIES.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



65485

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



Physiotherapy Department,
Kohler County Hospital,
Kohler, Wis.

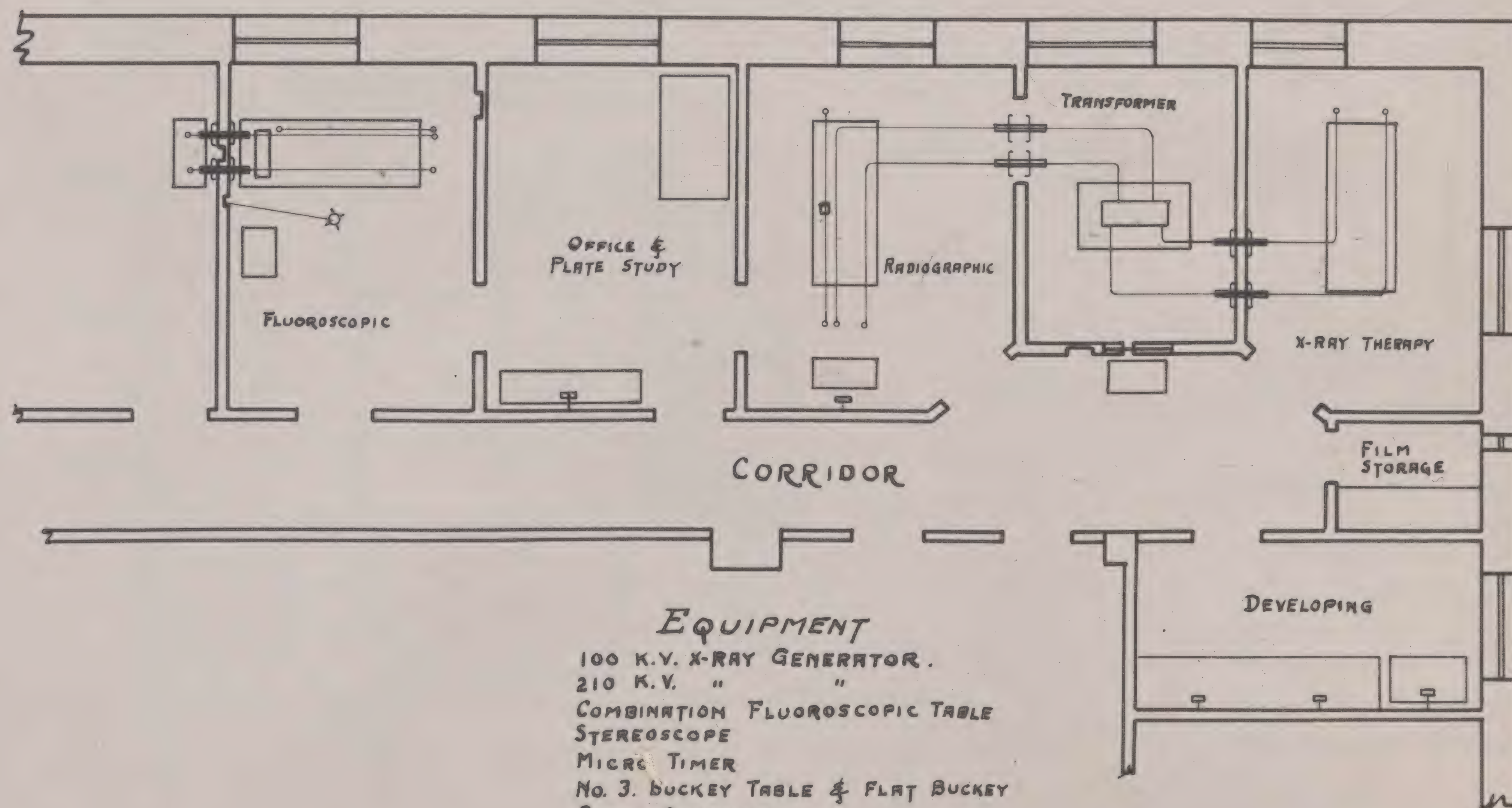
PENGELLY SERVICE INCLUDES PHYSICAL THERAPY INSTALLATION.

3506

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.



EQUIPMENT

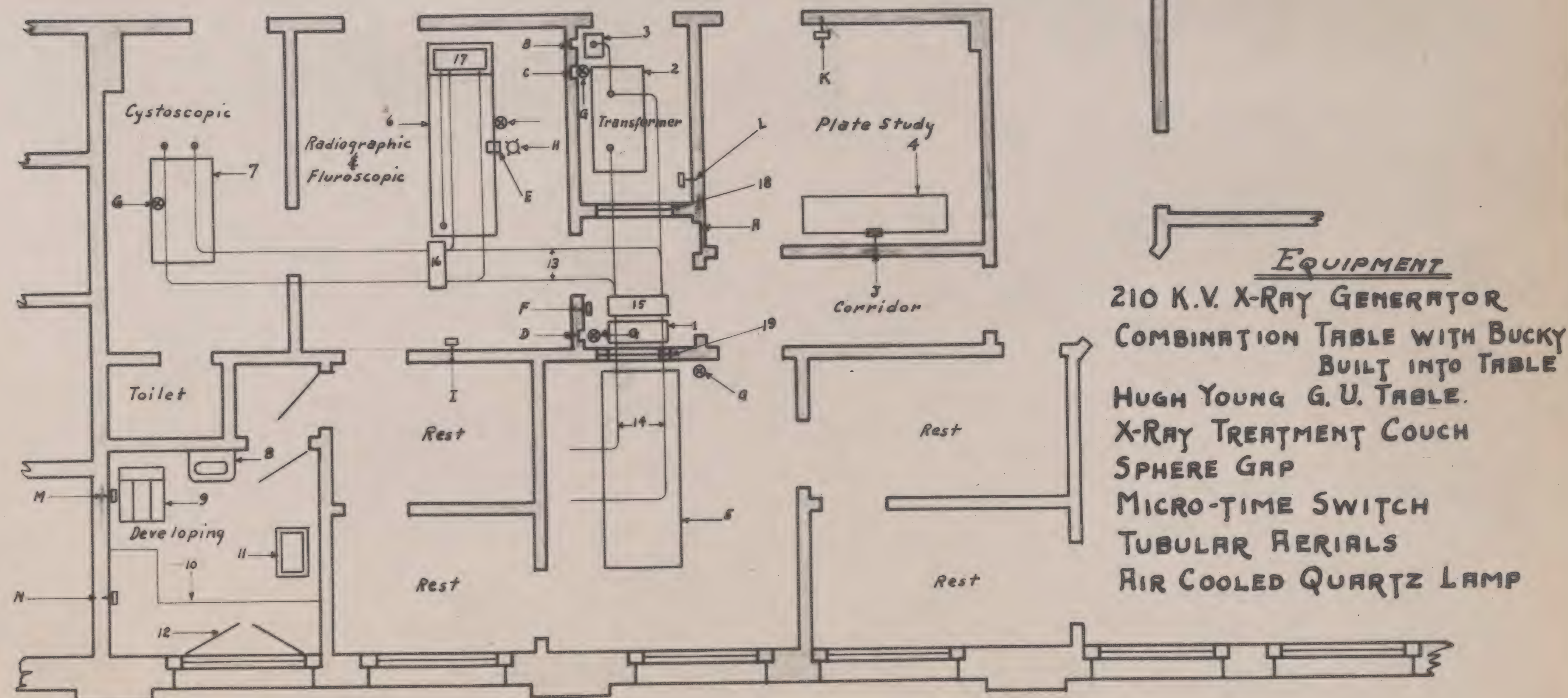
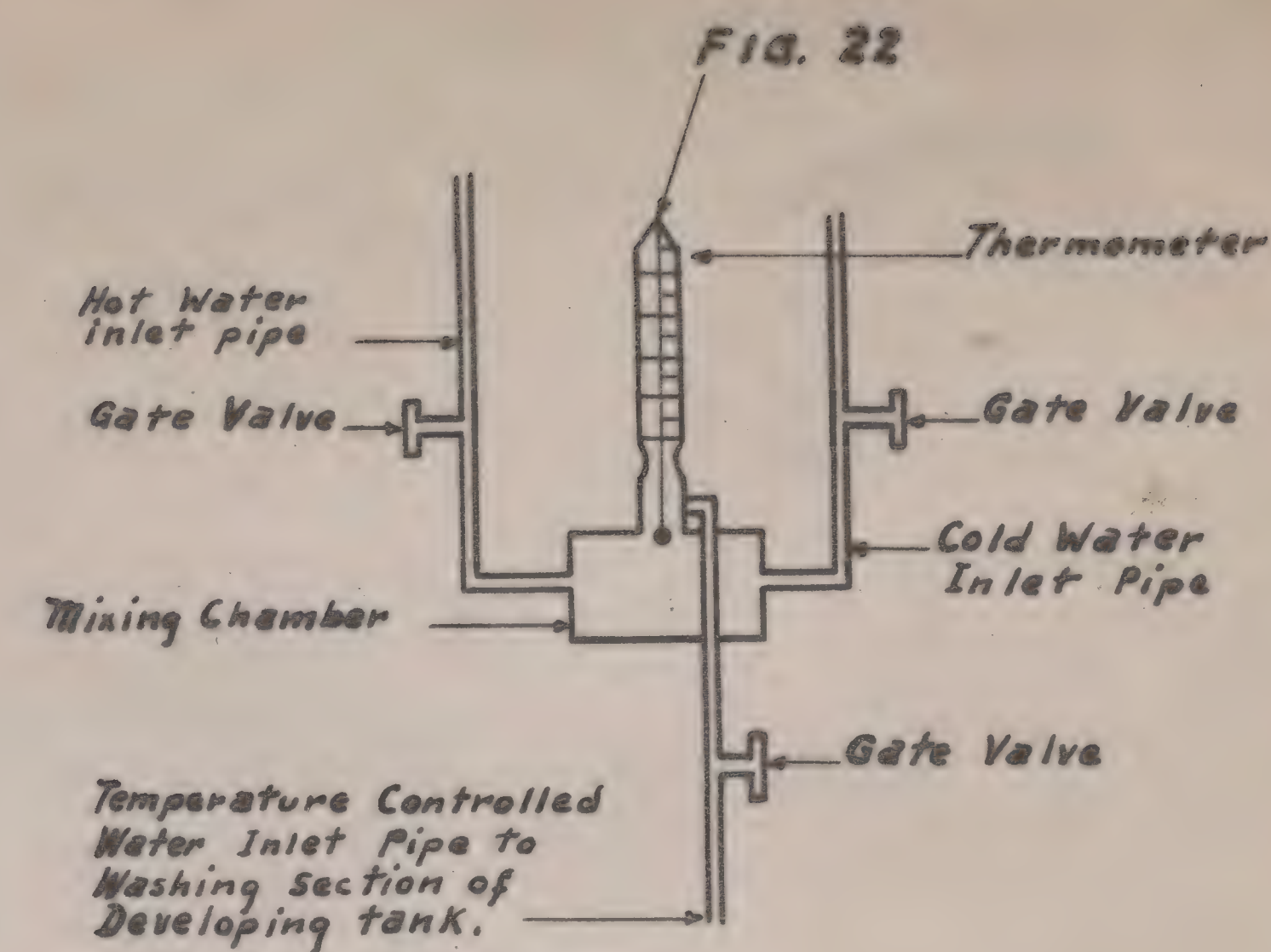
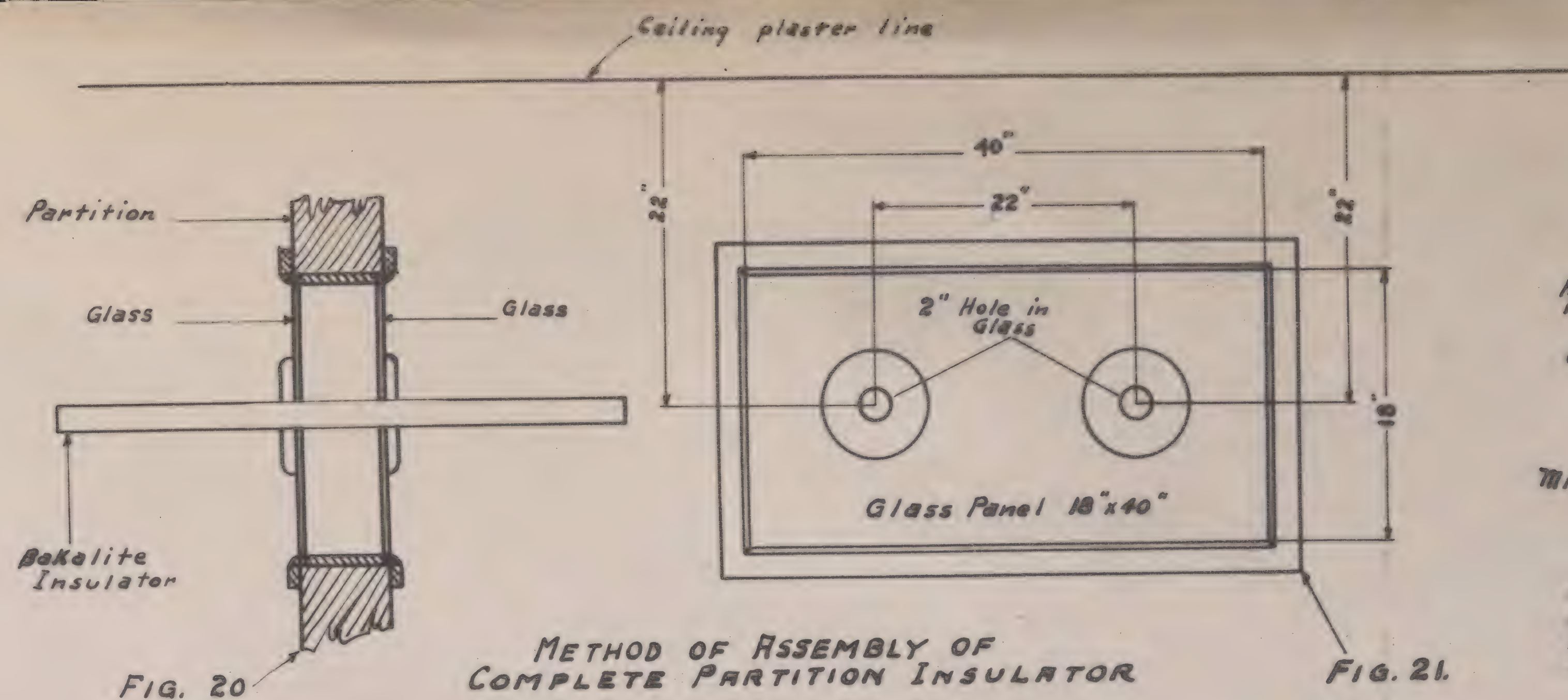
100 K.V. X-RAY GENERATOR.
 210 K.V. " "
 COMBINATION FLUOROSCOPIC TABLE
 STEREOSCOPE
 MICRO TIMER
 NO. 3. BUCKEY TABLE & FLAT BUCKEY
 PLATE CHANGER
 SPHERE GAP
 BURDICK QUARTZ LAMPS
 POLYTHERM HIGH FREQUENCY
 PORTABLE " "

QUAIN, RAMSTAD & LA ROSE
 BISMARCK, N.D.

SCALE
 $\frac{1}{4}" = 1'-0"$

PENGELLY X-RAY CO.
 MINNEAPOLIS-MILWAUKEE.



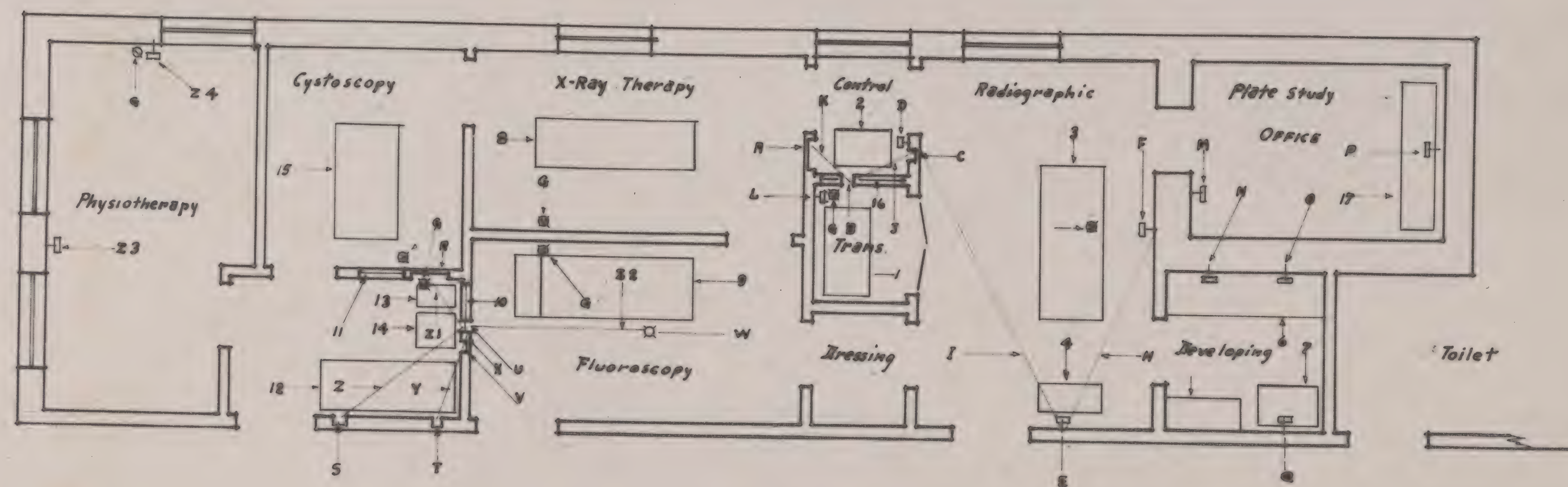
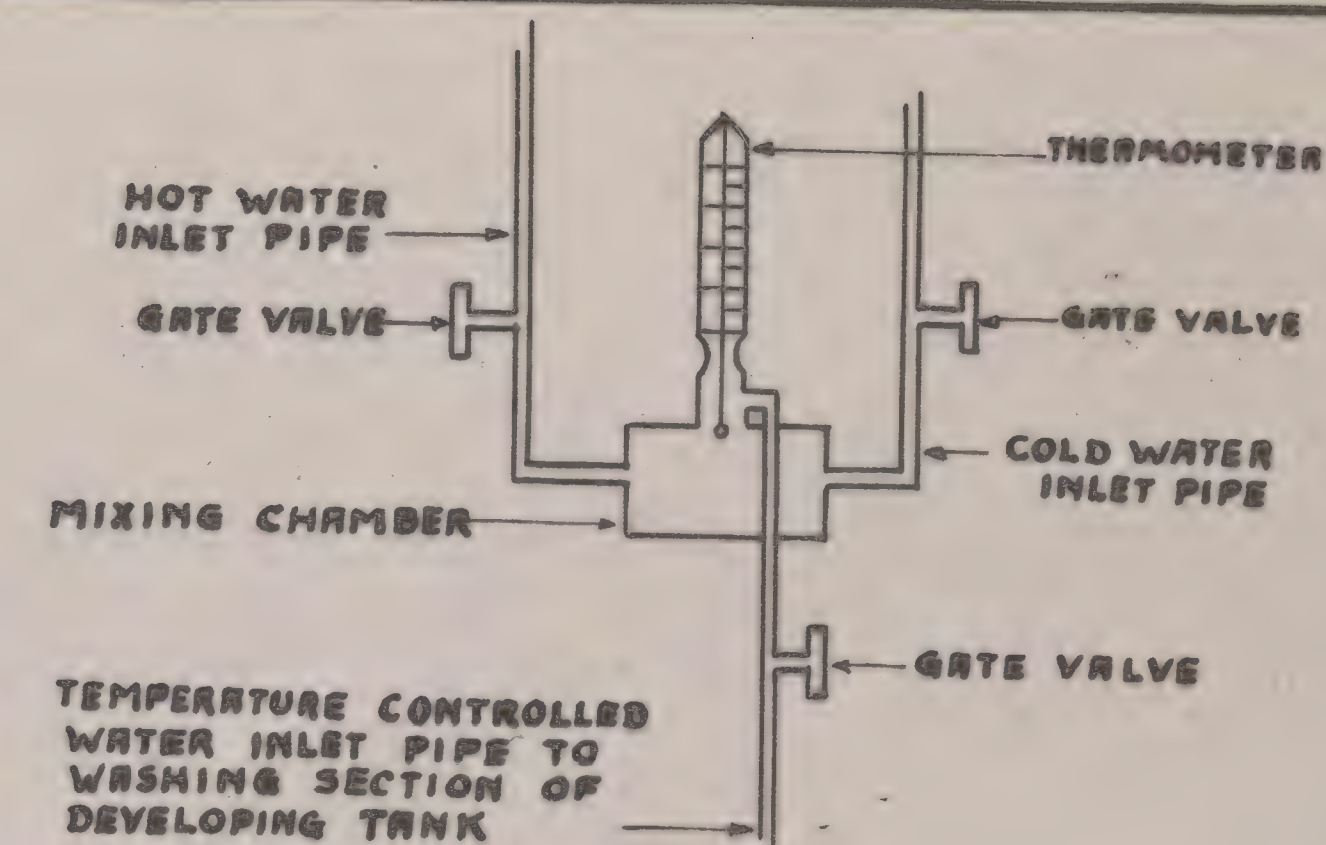


DRS. ANDRUS & GARBERTSON
MILES CITY - MONTANA
SCALE $\frac{1}{4}$ " = 1'0"

PENGELLY X-RAY CO.
MINNEAPOLIS - MILWAUKEE



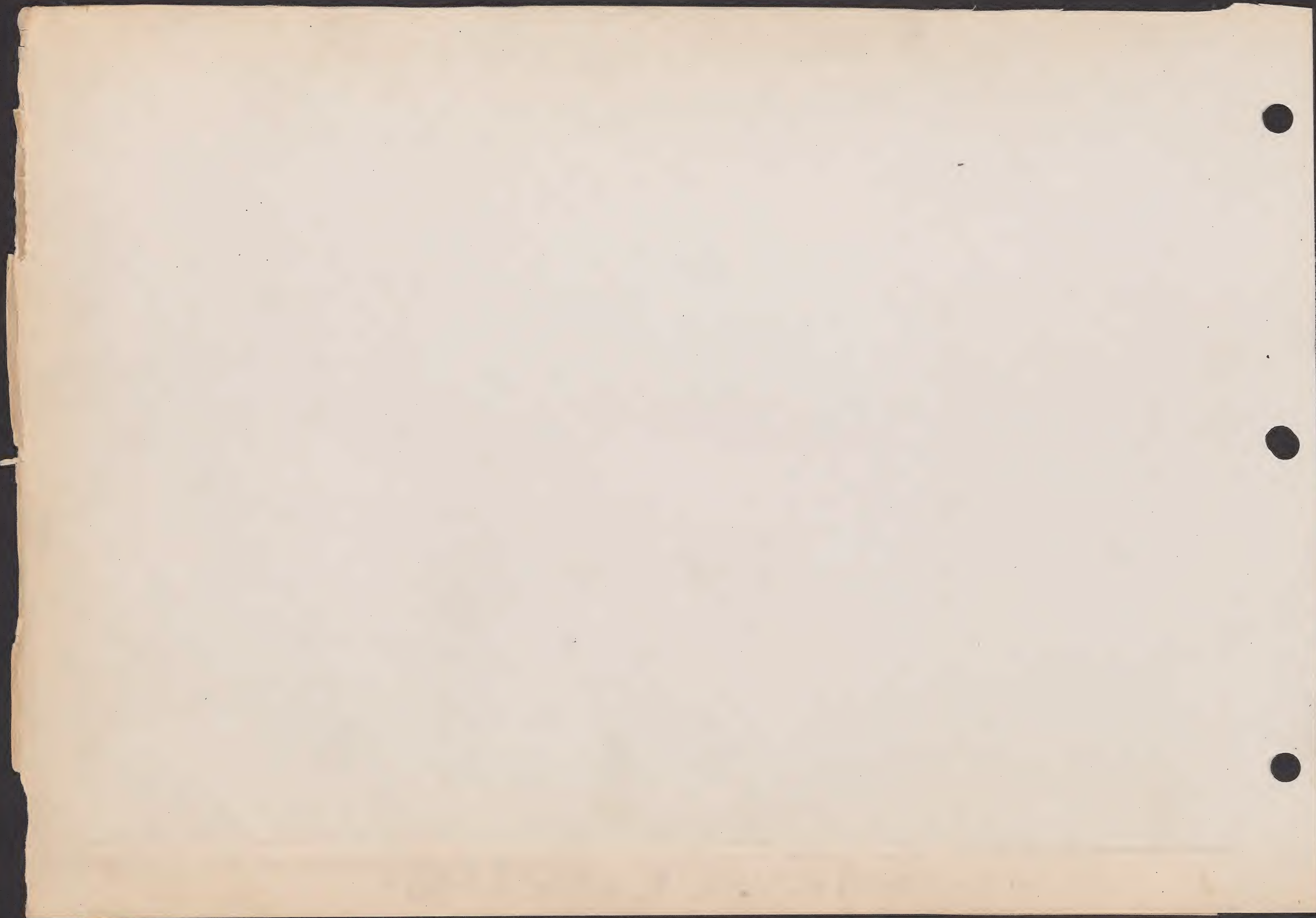
EQUIPMENT
 100 K.V. X-RAY GENERATOR
 X-R-V PLATE CHANGER
 STEREOSCOPE
 NO. 1 TUBE STAND
 TUBULAR AERIAL
 POLYTHERM DIATHERMY

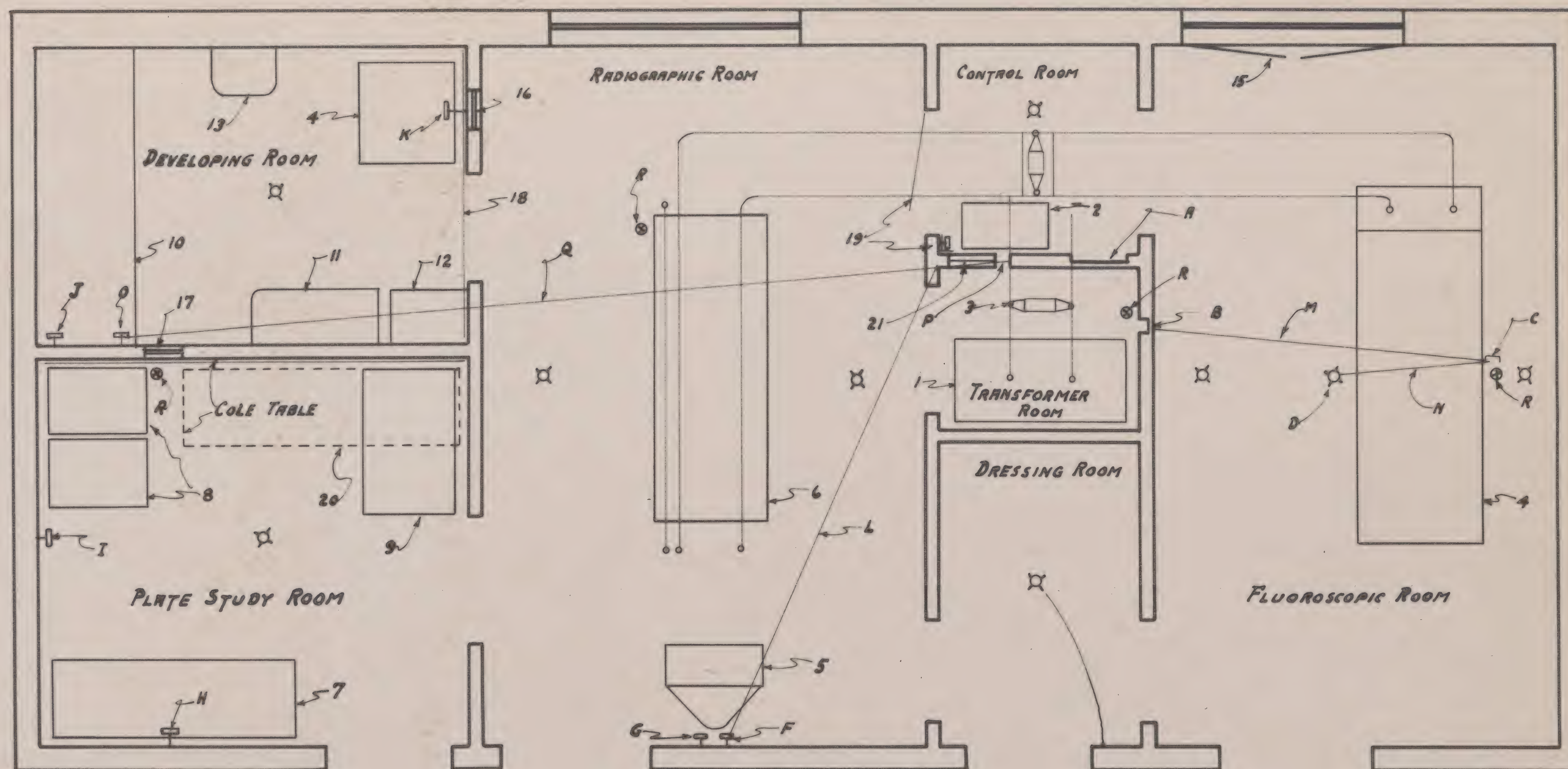


DRS. M^C GREGOR-HANNAN-CLAY & KELLY
 FARGO, NO. DAK.

PENGELLY X-RAY CO.
 MPLS, MINN.

PENGELLY SERVICE CARRIES A COMPLETE LINE OF MACHINES
 IN STOCK FOR EMERGENCIES.





EQUIPMENT
 150 K.V. X-RAY GENERATOR
 COMBINATION FLUOROSCOPE
 SPHERE GAP
 BUCKY DIAPHRAGM TABLE
 PLATE CHANGER
 MICRO TIME SWITCH
 STEREOSCOPE
 TUBING AERIAL

DRS. SCHELDROP, TENNYSON & PETERSEN
 MINNEAPOLIS, MINN.

PENGELLY X-RAY CO.
 MINNEAPOLIS-MILWAUKEE.

CORONA IS POWER LOSS. USE CORONALESS X-RAY MACHINES.

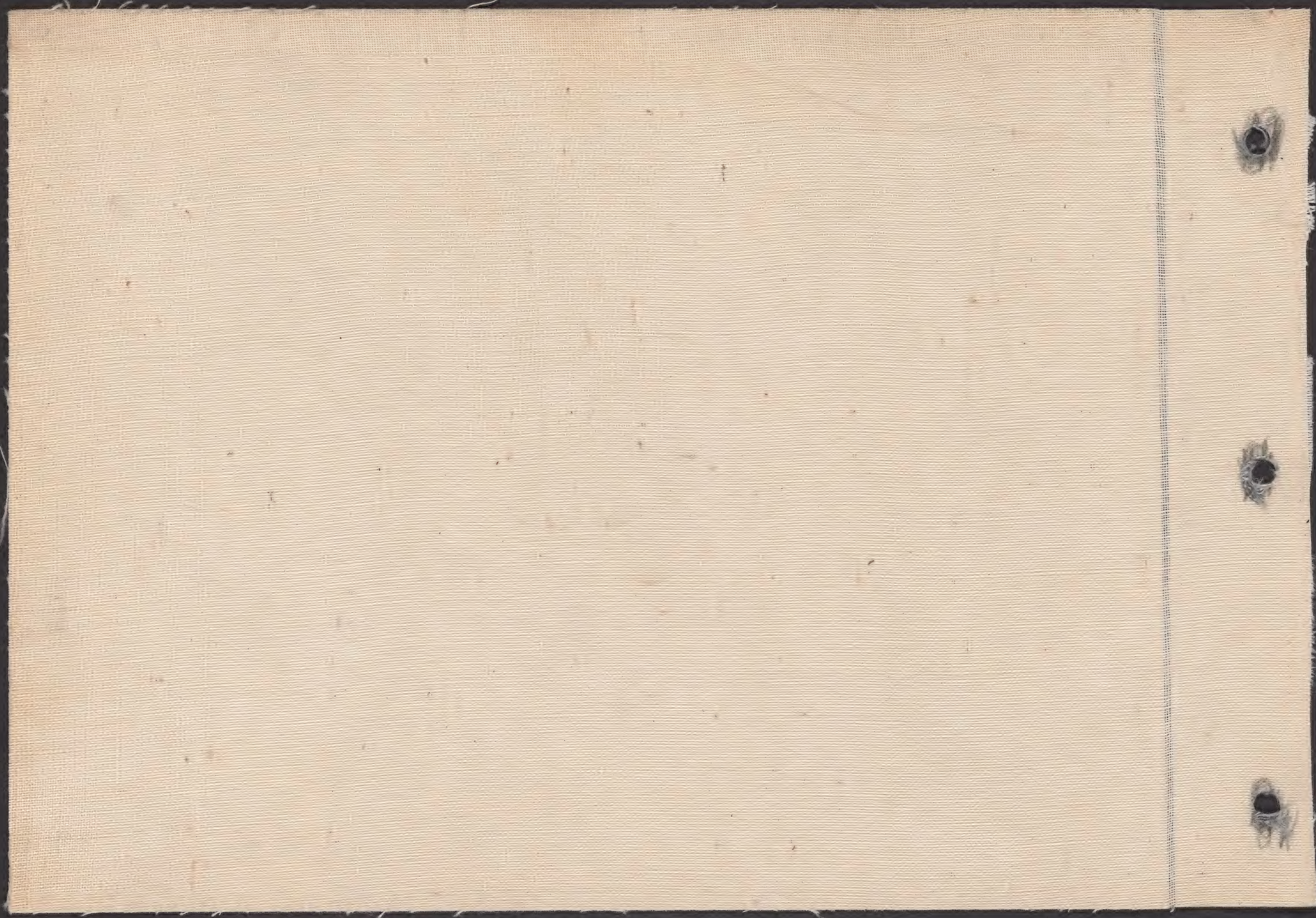


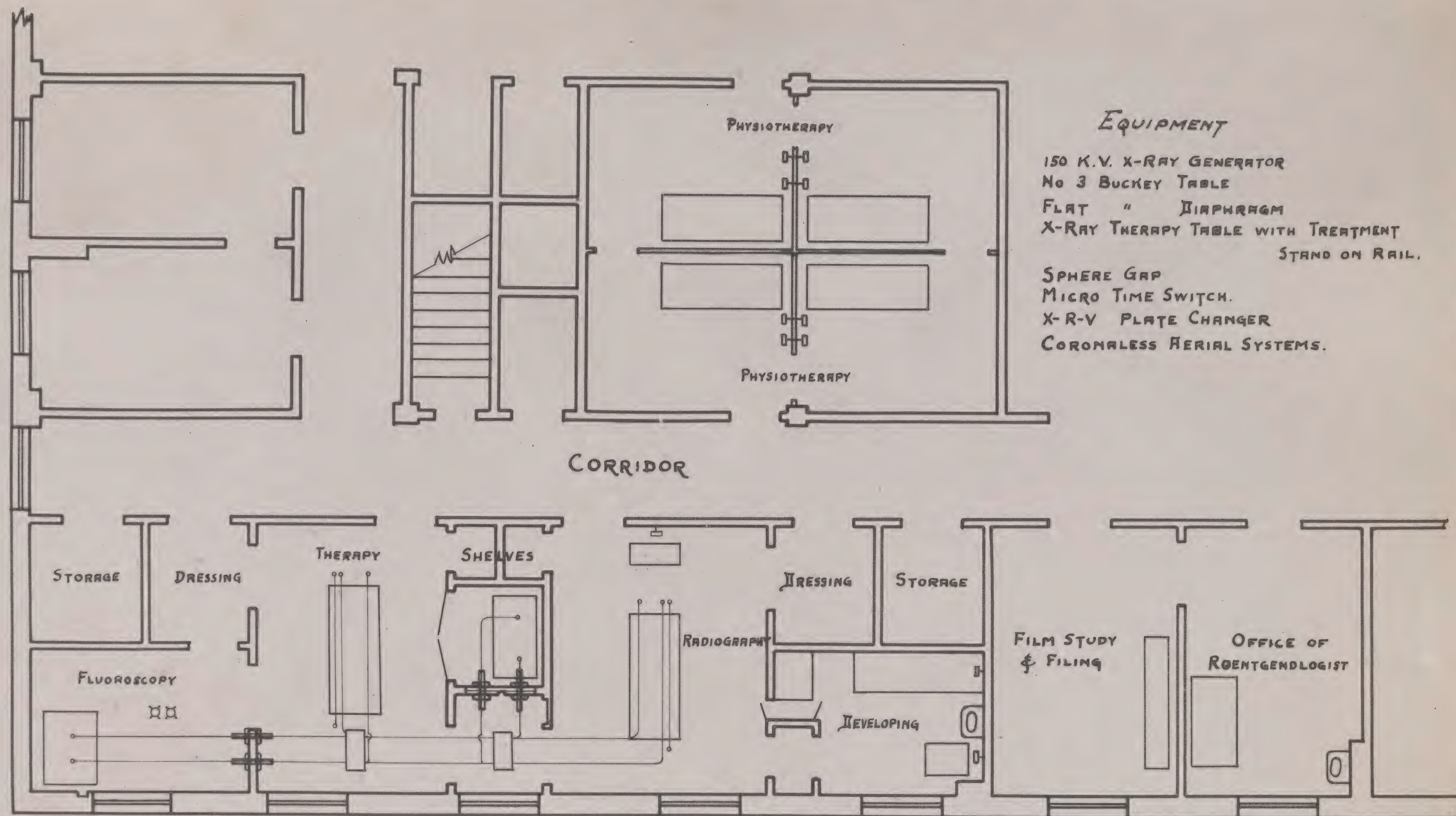


MANATO CLINIC
MANATO
MINN

SNOW'S
STUDIO
MANKATO,
MINN.



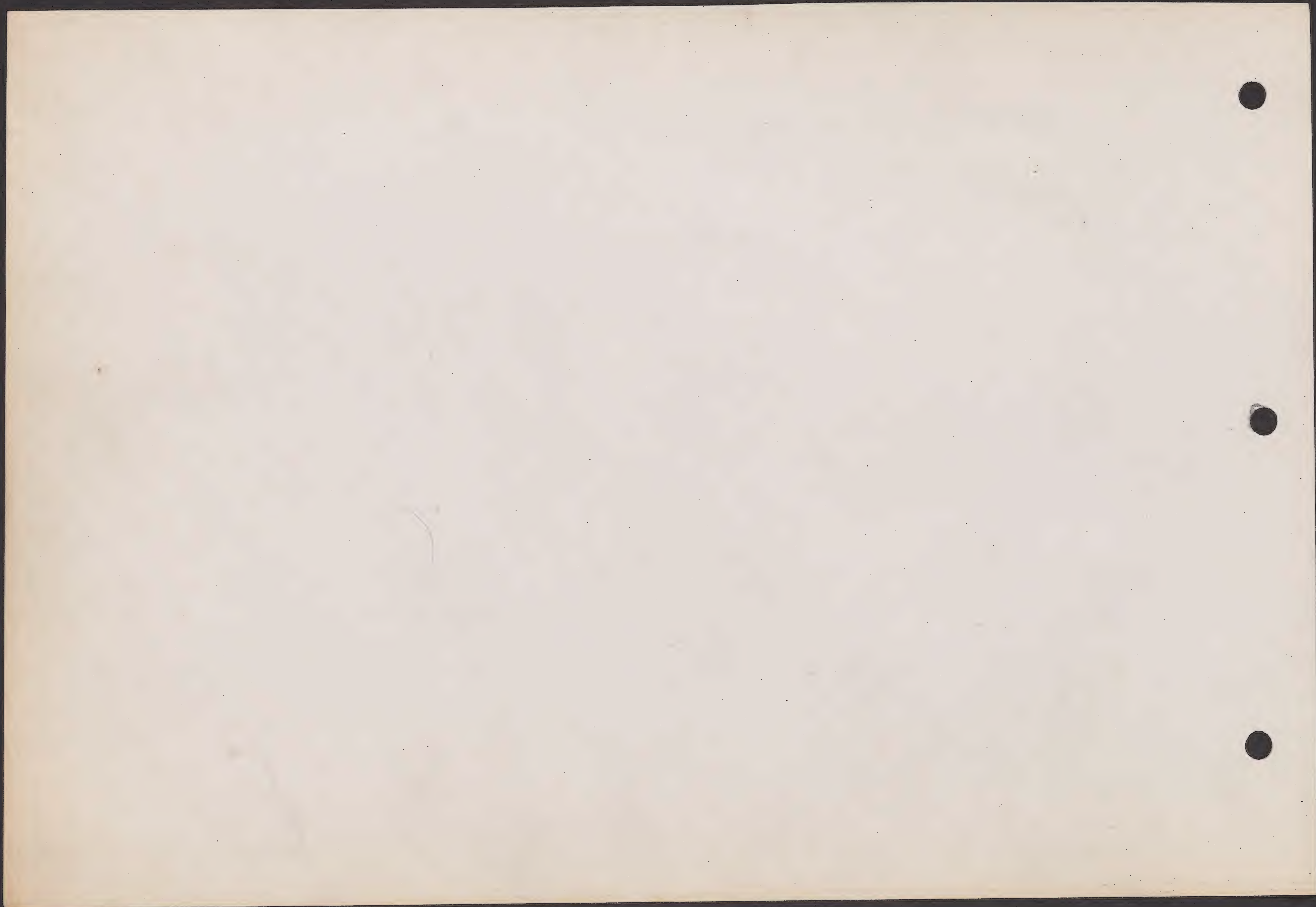




SCALE $\frac{1}{4}" = 1'-0"$

MARSHFIELD CLINIC
 MARSHFIELD, WIS.

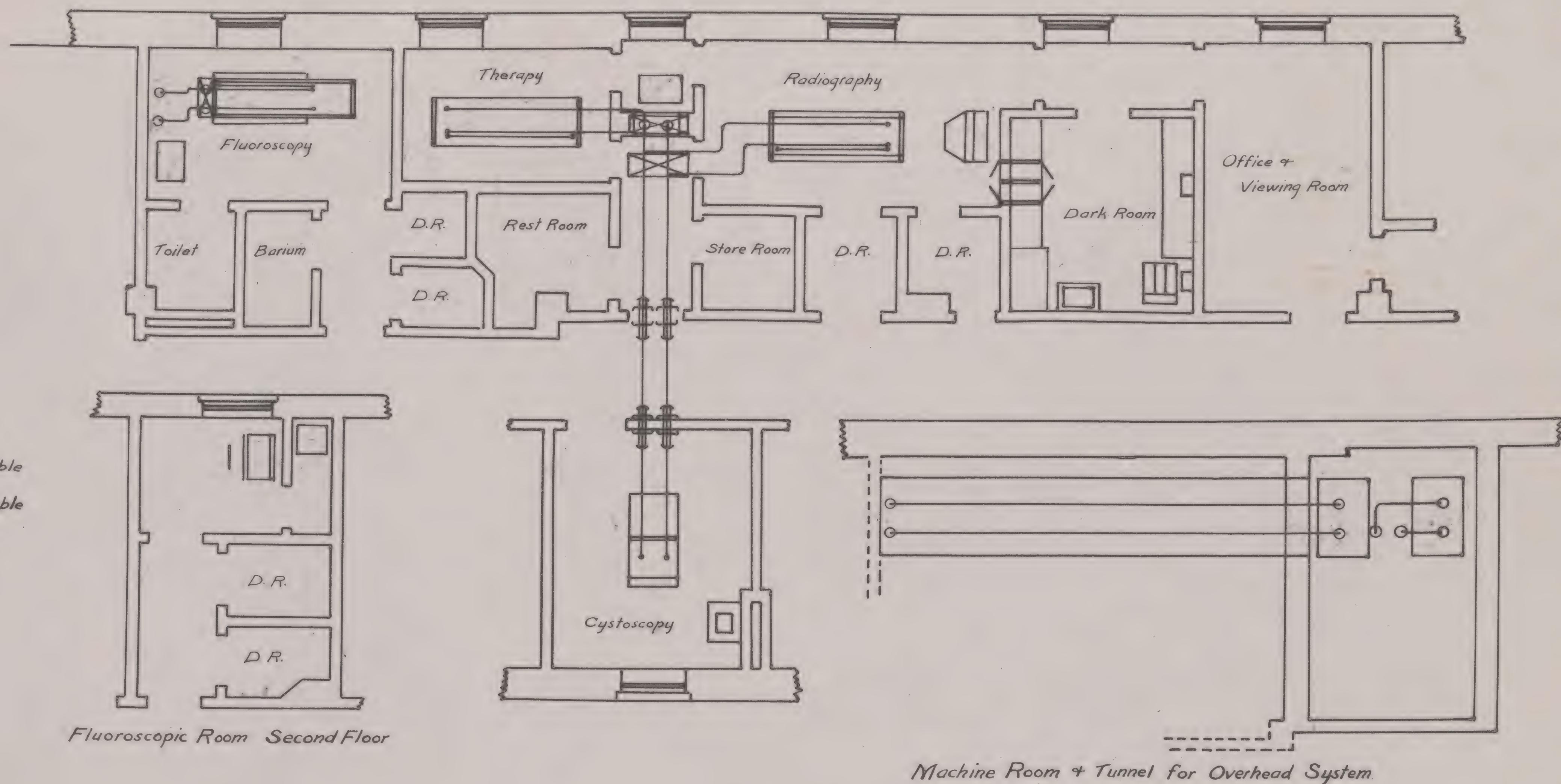
PENGELLY X-RAY CO.
 MINNEAPOLIS- MILWAUKEE.



DULUTH CLINIC
DULUTH MINN.







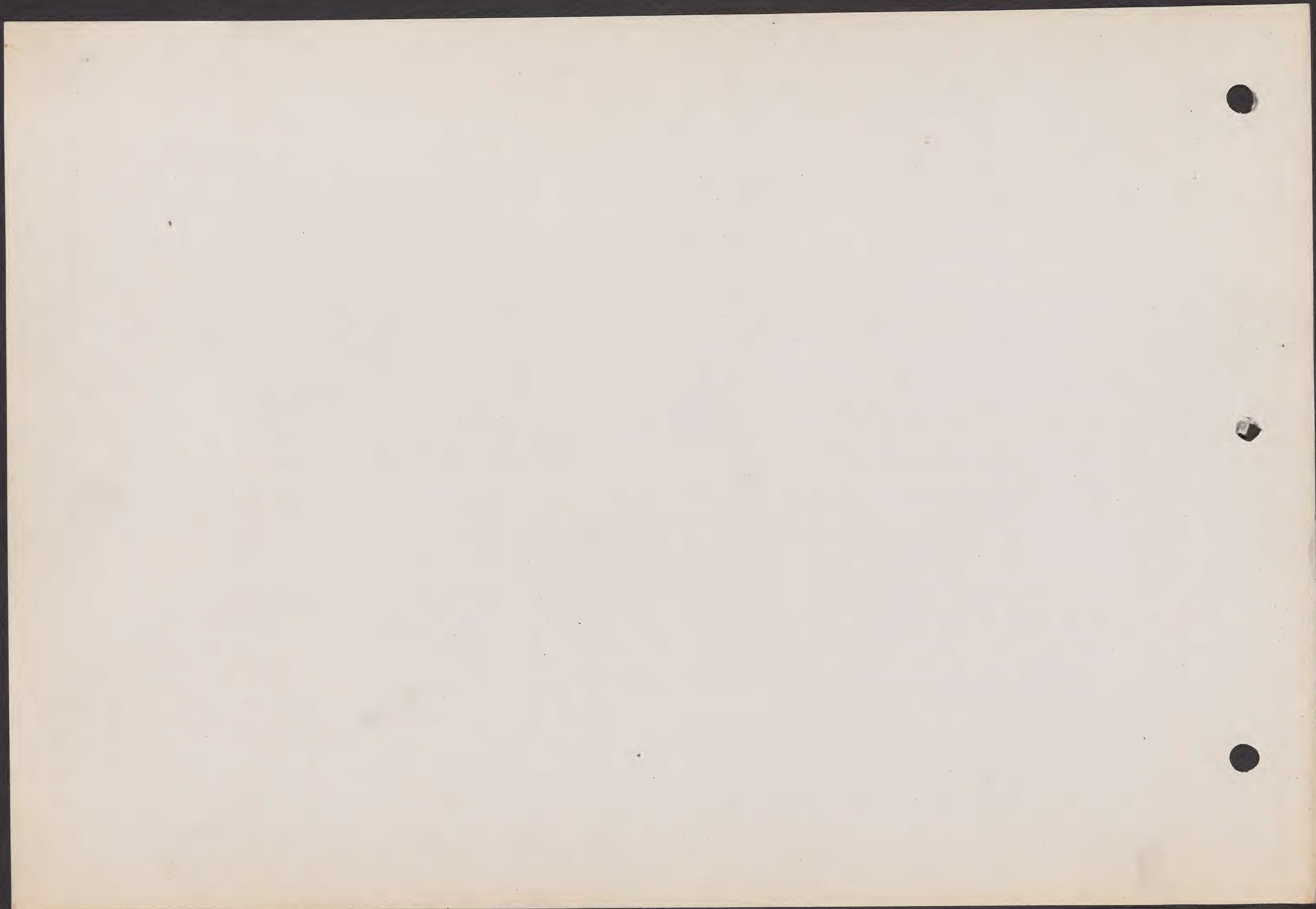
THE DULUTH CLINIC

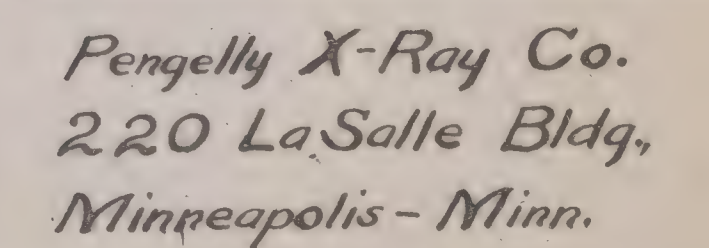
Duluth Minn

X-Ray Laboratory-Machine Layout

Scale 1/4 inch = 1 ft. Nov 27-1926

Pengelly X-Ray Co.
220 LaSalle Bldg.
Minneapolis Minn.









M

RY E. PENGELLY

E BUILDING

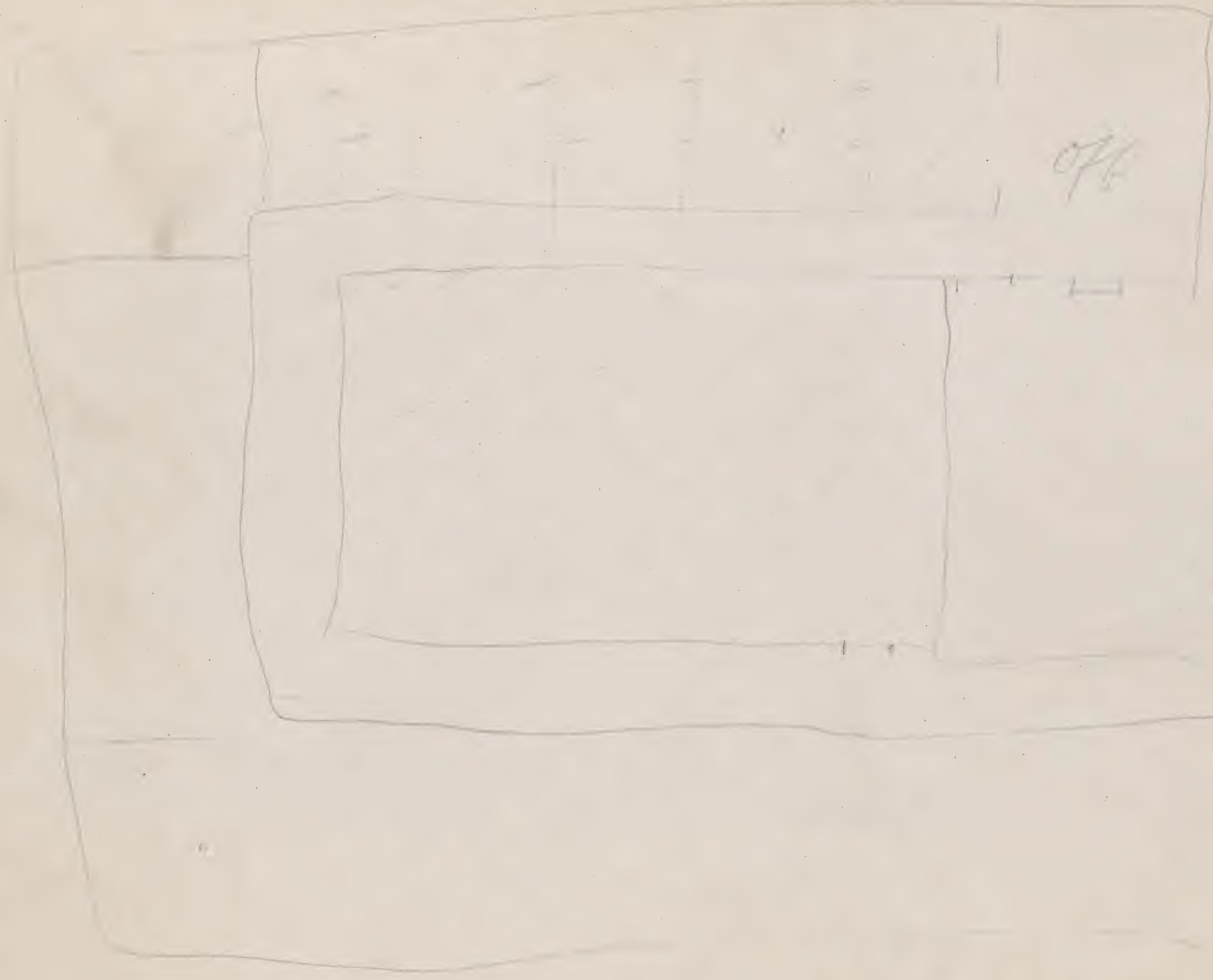
MINNESOTA

FR

F. LORNE & HAK

220 LA SALLE

MINNEAPOLIS,



M
RY E. PENG
BUILDING
MINN

OM
RY E. PENGELLY
LE BUILDING
MONTA



*DeLo's Clinic,
Fargo, N. Dak.*

THE ABOVE CLINIC HAS THE MOST COMPLETE X-RAY DEPARTMENT IN THE NORTHWEST
(EXCEPTING MAYO CLINIC). SOLD AND INSTALLED BY PENGELLY SERVICE.

HIBBARD STUDIO
COMMERCIAL PHOTOGRAPHER
412 NICOLLET AVENUE
MINNEAPOLIS, - MINN.

EQUIPMENT

210-K.V. X-RAY GENERATOR
100-K.V. " "

DEEP THERAPY PROTECTION CYLINDER

WATER-COOLING APPARATUS

SPHERE GAP

MICRO-TIME SWITCH

STEREOSCOPE

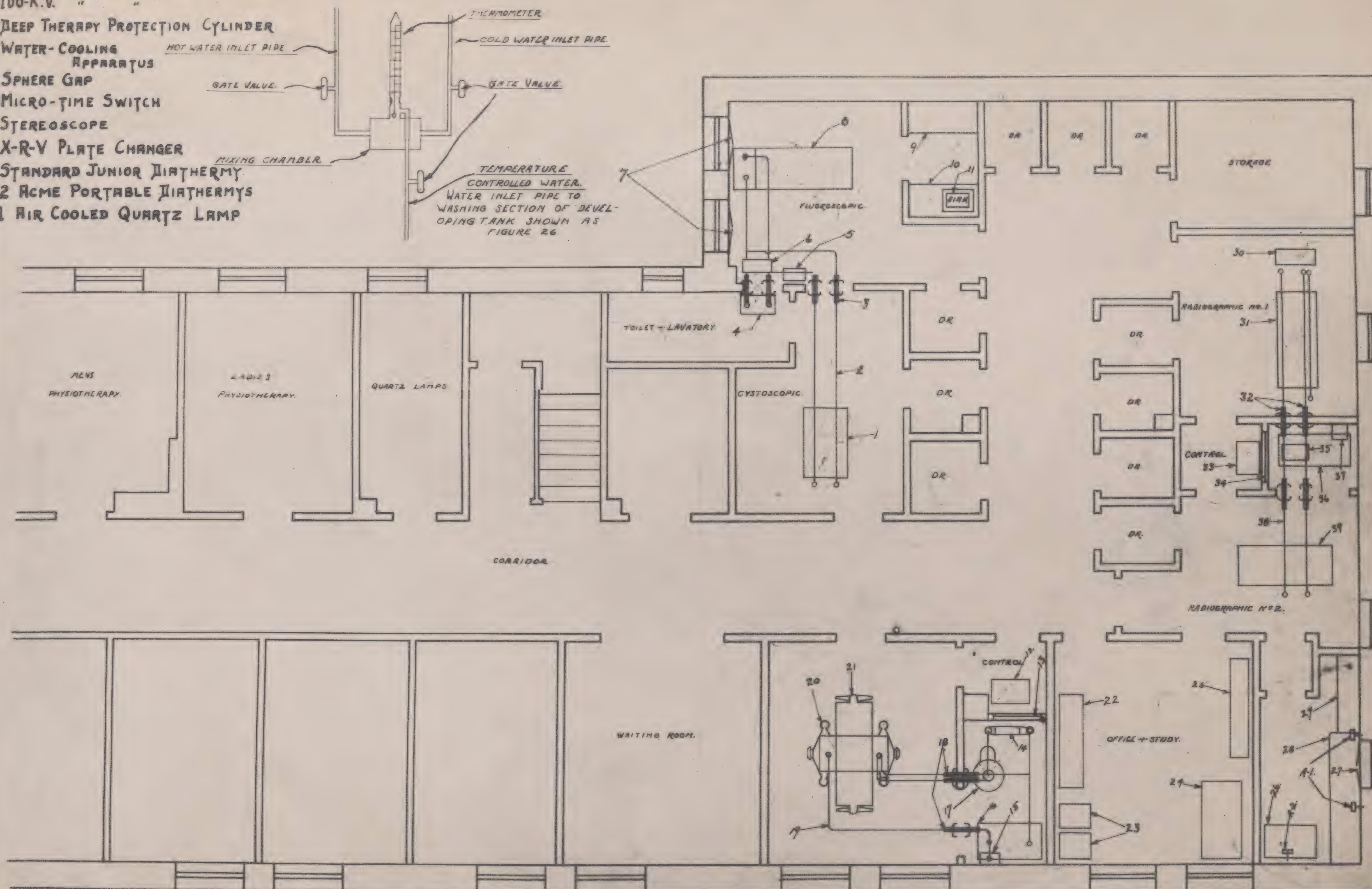
X-R-Y PLATE CHANGER

STANDARD JUNIOR DIATHERMY

2 ACME PORTABLE DIATHERMYS

1 AIR COOLED QUARTZ LAMP

FIGURE-40



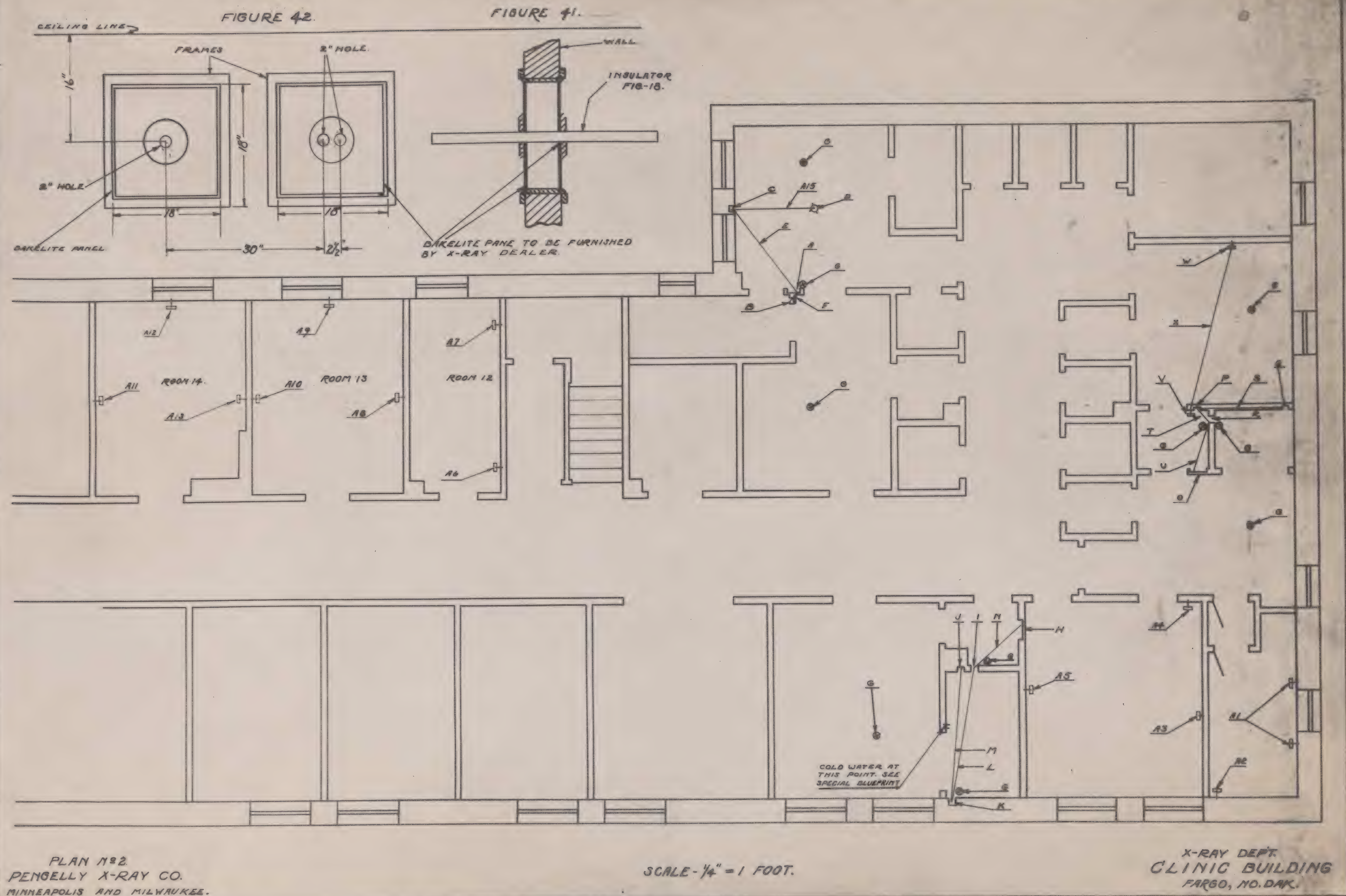
PLAN No. 1.
PENGLY X-RAY CO.
MINNEAPOLIS AND MILWAUKEE.

SCALE - 1/4" INCH = 1 FOOT.

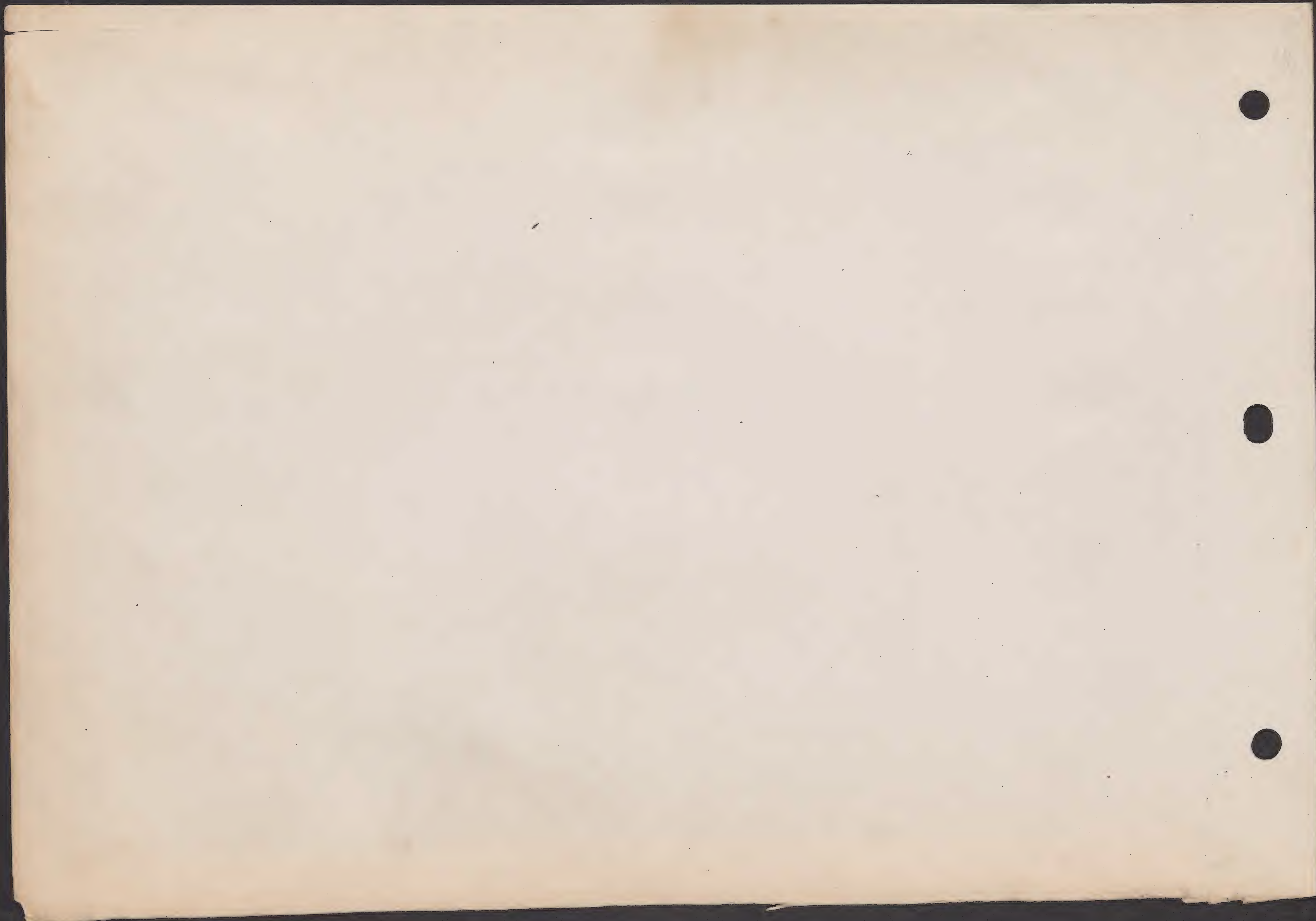
X-RAY DEPT.
CLINIC BUILDING
FABCO, NO. 215.

SERVING 2000 ROENTGENOLOGISTS AND HOSPITALS HAS TAUGHT US HOW.





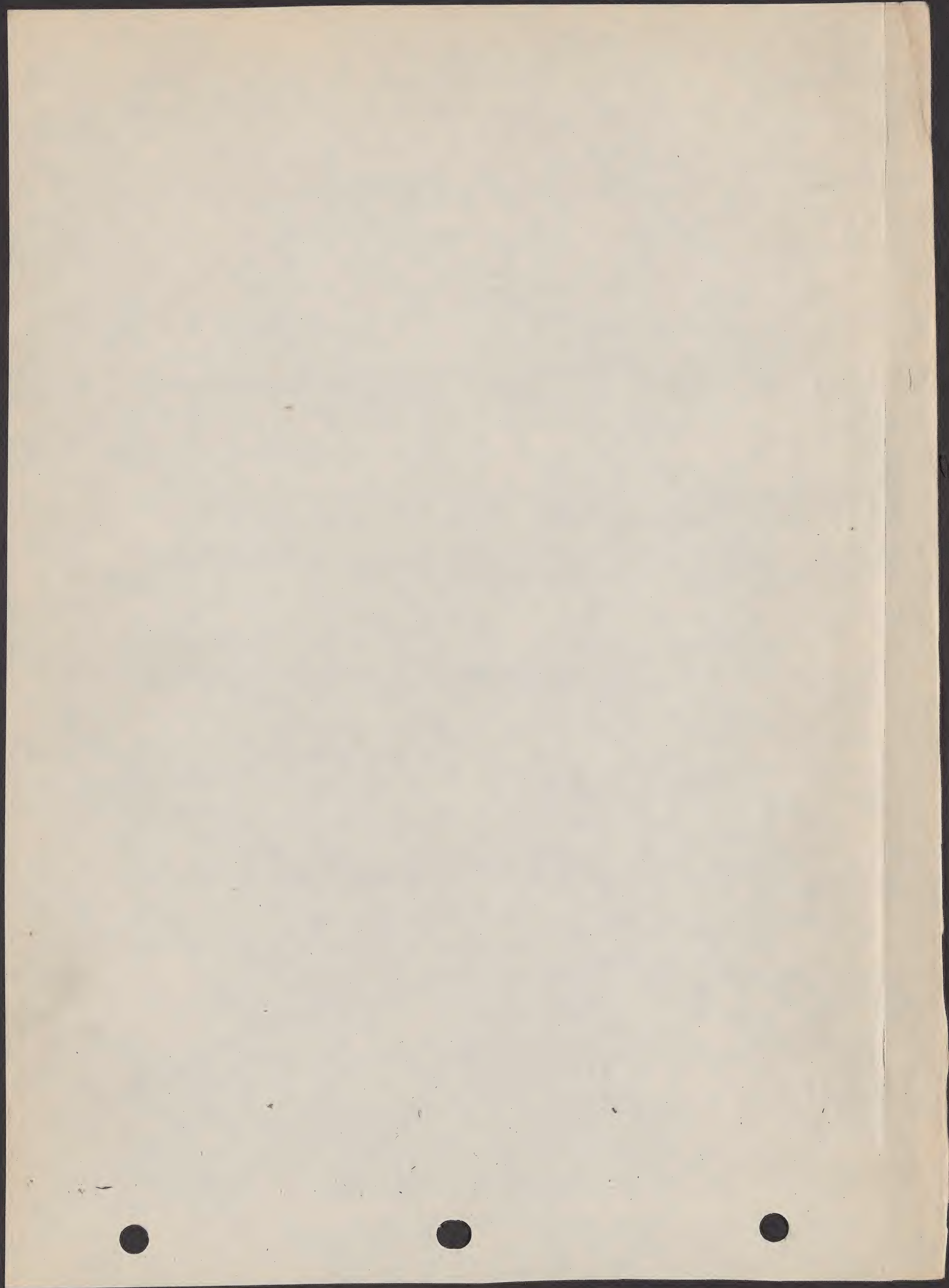
KEYS TO WIRING DIAGRAMS ARE FURNISHED FOR X-RAY INSTALLATIONS BY
PENGELLY SERVICE, REGARDLESS OF SIZE OF EQUIPMENT.



KEY TO ELECTRICAL WIRING IN X-RAY AND PHYSIOTHERAPY DEPTS.

X-RAY DEPARTMENT, CLINIC BUILDING, FARGO, N. D.

- -- -- -- --
- A - represents wall cabinet located in partition of fluoroscopic room as shown in sketch, bottom of cabinet to be 48 inches above floor and flush with side wall. This cabinet to contain one 60 ampere fused knife switch. The current supplied to this switch should be 220 volts, 60 cycles. #8 rubber covered copper wire should be used provided the run from the main panel board to the switch in cabinet A is not more than 100 ft. If the run is 200 ft. #6 wire should be used. This line should be on a separate circuit. Elevators, ice machines and other equipment used intermittently will make it impossible to get satisfactory results if they are on the same circuit.
 - B - represents wall box approximately 4 x 4 inches located in side wall in lavatory at a position as shown in sketch and 8 ft. 6 inches above floor to be fitted with metal cover with single opening fitted with porcelain bushing 1-1/4 inch in diameter.
 - C - represents 4 x 4 wall box located in side wall of fluoroscopic room in position as shown in sketch and at the top of baseboard. To be fitted with metal cover with single opening fitted with porcelain bushing one inch in diameter.
 - D - represents receptacle in ceiling and in position as shown in sketch to contain one 10 watt natural ruby lamp. This must be on a separate circuit from room lights as it will be necessary to switch this lamp on and off regardless of whether room lights are in use or not.
 - E - represents 1-1/4 inch conduit connecting wall box C with wall cabinet A.
 - F - represents 1-1/2 inch conduit connecting wall box B with wall cabinet A. A wall box 4 x 4 inches should be placed in side wall at top of baseboard and directly beneath wall cabinet A. This should be connected with wall cabinet A with conduit 1-1/2 inch in diameter.
 - G - grounds - There are several of these. Two are located in fluoroscopic room, one in cystoscopic room, one in deep therapy treatment room, one in radiographic room #1, one in control room of radiographic department, one in transformer room of radiographic department, one in radiographic room #2, one in control room of deep therapy department, one in transformer room of deep therapy department. These grounds should be placed as shown on blue print. They should consist of brass or copper plates or binding posts and set in the floor flush with finish slab and fitted with set screw so that ground wires from the different pieces of apparatus to be grounded can be conveniently attached. These binding posts or plates should be connected to a cold water pipe ground - radiators or hot water pipes should not be used. #10 rubber covered copper wire should be used between ground and these binding posts and



should be firmly soldered. It is important that these instructions be carried out in detail as the safety of operators and patients as well as the equipment depends on it.

- H - represents wall cabinet located in control room of deep therapy department, bottom of cabinet to be 4 ft. 6 inches above floor. This cabinet to contain one 100 ampere fused knife switch. A pair of #0 rubber covered copper wires should be carried direct from the main panel board to this knife switch. The current supplied to this switch should be 220 volts, 60 cycles. This line should be entirely free from intermittent loads such as elevators.
- I - represents wall box approximately 4 x 6 inches located in wall between control room and transformer room in deep therapy department and at top of baseboard. This box must open both into the control room and the transformer room. Each side should be fitted with a metal cover with single opening in center fitted with porcelain bushing 1-1/2 inches in diameter.
- J - represents 4 x 4 wall box located in side wall of transformer room of deep therapy department as shown in sketch and about three feet above floor. Box to have metal cover with single opening in center fitted with porcelain bushing one inch in diameter.
- K - represents 4 x 6 wall box located in side wall of transformer room of deep therapy department as shown in sketch and as close to corner of room as possible and just above baseboard. This box to have metal cover with single opening in center fitted with porcelain bushing 1-1/2 inches in diameter.
- L - represents 2 inch conduit connecting wall box K with wall box I.
- M - represents 1-1/4 inch conduit connecting wall box K with wall box J. An additional wall box approximately 4 x 4 inches should be placed directly above wall box K and about six feet above floor. This box should be in exactly the same position as wall box K and should be connected with wall box K with metal conduit one inch in diameter and is to have a metal cover with single opening in center with porcelain bushing one inch in diameter.
- N - represents 1-1/4 inch conduit connecting wall box I with wall cabinet H.
- O - represents wall cabinet located in side wall of control room of radiographic department and in position as shown in sketch - 5 ft. above floor. This box to contain one 100 ampere fused knife switch. A pair of #00 rubber covered copper wires should be carried direct from the main panel board to this switch. This should be a direct line from the service company's transformer. Elevators and other apparatus used intermittently must not be on this line as it will greatly interfere with the behavior of the equipment. Current supplied to this switch should be 220 volts, 60 cycles.

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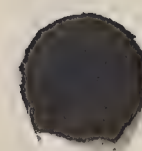
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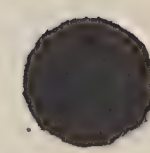
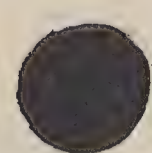
- P - represents 4 x 4 wall box located in side wall of control room of radiographic department in position as shown in sketch and three feet above floor. This box to have metal cover with single opening in center fitted with porcelain bushing one inch in diameter.
- Q - represents 4 x 4 wall box located in side wall of transformer room of radiographic department and in position as shown in sketch 6 ft. above floor. This box to have metal cover with single opening in center fitted with porcelain bushing 1/2 inch in diameter.
- R - represents wall box located in side wall between the control room and transformer room in radiographic department to be in position as shown in sketch and at top of baseboard. This box to open in both control room and transformer room - each side to be fitted with metal cover and fitted with porcelain bushing 1-1/4 inch in diameter.
- S - represents 3/4 inch conduit connecting wall box P with wall box Q.
- T - represents 1-1/4 inch conduit connecting wall box P with wall box R.
- U - represents 1-1/4 inch conduit connecting wall cabinet O with wall box R.
- V - represents flush wall receptacle located in side wall of control room in position as shown in sketch as close to door as possible and four ft. above floor. 110 volts, 60 watts required.
- W - represents flush wall receptacle located in side wall of radiographic room #1 in position as shown in sketch and 4 ft. above floor.
- X - represents 1/2 inch conduit connecting receptacle V with receptacle W. Receptacle W should not be wired for electric current. This merely forms a loop from receptacle V and will operate a magnetic trip on vertical changer shown as Fig. 30.
- A-1 There are two of these - they represent flush wall receptacles located in side wall of developing room about 6 ft. above floor in position on either side of window as shown in sketch. 110 V. 40 watts required in each receptacle.
- A-2 represents flush wall receptacle located in side wall of developing room and directly over developing tank shown as Fig. 26. Approximately 6 ft. above floor. 40 watts at 110 V. required.
- A-3 represents flush receptacle mounted in side wall in plate study room and in position as shown in sketch. Should be placed at top of baseboard. 60 watts at 110 volts required.



- A-4 represents heavy capacity flush receptacle (or a small knife switch is optional) located in side wall in plate study room in position as shown in sketch and about four feet above floor. 1500 watts at 110 volts required.
- A-5 represents flush wall receptacle located in side wall of plate study room in position as shown in sketch and four feet above floor. 800 watts at 110 volts required.
- A-6 represents heavy capacity flush receptacle located in side wall of lamp room shown as room #12. This receptacle should be placed about three feet above floor and in position as shown in sketch. 15 amperes at 110 volts required. A pair of #10 rubber covered copper wires to carry current direct from panel board to this receptacle.
- A-7 represents heavy capacity flush receptacle located in side wall of lamp room shown as room #12. This receptacle should be placed about three ft. above floor and in position as shown in sketch. 15 amperes at 110 volts required. A pair of #10 rubber covered copper wires to carry current direct from panel board to this receptacle.
- A-8 represents heavy capacity flush wall receptacle located in side wall of ladies' physiotherapy room shown as room #13. This should be placed in position as shown on sketch on side wall about three ft. above floor. A pair of #10 rubber covered copper wires should come direct from the panel board to this receptacle. Amount of current required is 10 amperes at 110 volts.
- A-9 represents heavy capacity flush wall receptacle located in side wall of ladies' physiotherapy room shown as room #13. This should be placed in position as shown in sketch on side wall about three feet above floor. A pair of #10 rubber covered copper wires should come direct from the panel board to this receptacle. Amount of current required is 10 amperes at 110 volts.
- A-10 represents heavy capacity flush wall receptacle located in side wall of ladies' physiotherapy room shown as room #13. This should be placed in position as shown in sketch on side wall about three feet above floor. A pair of #10 rubber covered copper wires should come direct from the panel board to this receptacle. Amount of current required is 10 amperes at 110 volts.
- A-11 represents heavy capacity flush receptacle located in side wall of men's physiotherapy room shown as room #14. This should be located in side wall as shown in sketch and about three feet above floor. pair of #10 rubber covered copper wires to come direct from panel board to this receptacle. Current required is 10 amperes at 110 V.
- A-12 represents heavy capacity flush receptacle located in side wall of men's physiotherapy room shown as room #14. This should be located in side wall as shown in sketch and about three feet above floor. pair of #10 rubber covered copper wires to come direct from panel board to this receptacle. Current required is 10 amperes at 110 V.



- A-13 represents heavy capacity flush receptacle located in side wall of men's physiotherapy room shown as room #14. This should be located in side wall as shown in sketch and about three feet above floor. A pair of #10 rubber covered copper wires to come direct from panel board to this receptacle. Current required is 10 amperes at 110 volts.
- A-14 shows position in control room of deep therapy department where cold running water must be brought. Cold water only is required. This should be carried through a galvanized pipe one inch in diameter. The outlet should be as close to door of transformer room as possible. Additional blue prints will be furnished giving exact specifications of method of installing pipes to carry this water, exact height of pipes from floor, method of carrying waste water off and other special features therewith.
- A-15 represents 1/2 inch conduit connecting wall box C in fluoroscopic room with receptacle D located in ceiling of fluoroscopic room.



KEY SHOWING LOCATION OF X-RAY APPARATUS AND METHOD
OF INSTALLING FIXTURES IN X-RAY DEPARTMENT, CLINIC
BUILDING, FARGO, NORTH DAKOTA.

Fig.

- 1 - represents G. U. table equipped with flat top Bucky Diaphragm and tube holder for 30 milliampere tube mounted in leaded glass protection shield and centered directly over diaphragm.
- 2 - represents coronaless tubular, aerial system in cystoscopic and fluoroscopic rooms.
- 3 - represents high tension insulators through partition between cystoscopic and fluoroscopic rooms and through partition between lavatory and fluoroscopic room. These insulators should be installed by X-Ray installation men at time apparatus is installed. Water pipes, conduits carrying wires or any other ground must be kept a distance of at least twelve (12) inches from where these aeriels pass through partition as shown on this sketch. Aerials will be 30 inches below ceiling.
- 4 - represents X-Ray generator with motor and rectifying switch - 100 K. V. capacity to be mounted on shelf at top of door between lavatory and fluoroscopic room.
- 5 - represents shock proof control table for 100 K. V. X-Ray generator.
- 6 - represents high tension coronaless aerial switch installed so that high tension current as well as filament current can be switched to fluoroscopic room or to cystoscopic room, to be mounted on ceiling in position as shown in sketch.
- 7 - represents photo-light proof shutters to cover windows in fluoroscopic room. These shutters to be made in two sections and should be made to fit very tightly. 1/2 inch stop should be used on all sides and the shutters should be overlapped at least 1/2 inch where they meet in the center.
- 8 - represents combination vertical and horizontal tilting fluoroscope.
- 9 - represents shelf in barium room to be 24 inches wide and 36 inches above floor. Cupboards should be built beneath this shelf, having at least two additional shelves and front should be fitted with two doors.
- 10 - represents shelf in barium room to be 24 inches wide and 36 inches above floor. Small laboratory sink should be mounted in this shelf and flush with the top of it.
- 11 - represents laboratory sink about 12 x 16 inches mounted in shelf shown as Fig. 10 and flush with the top of same.
- 12 - represents shock proof control table for deep therapy X-Ray generator.

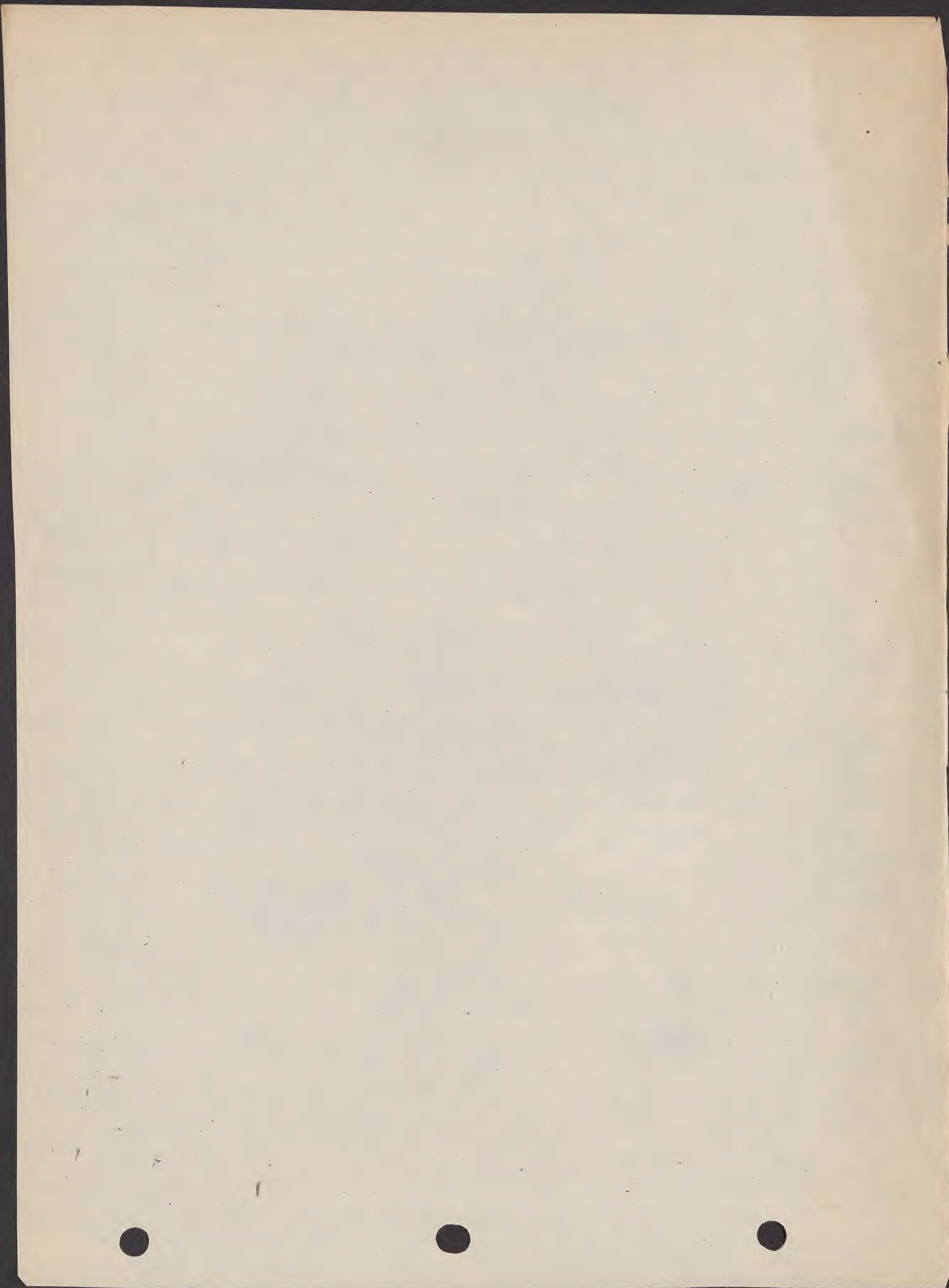


Fig.

- 10 13 - represents window in partition between control room and transformer room used for deep therapy. The glass in this window should be 40 inches above floor. The frame for this window should be made to accommodate a pane of double strength window glass three feet wide and four feet high.
- 14 - represents callibrated sphere gap with magnetic control for checking voltage on deep therapy equipment.
- 15 - represents Coolidge tube filament transformer to be mounted on bracket on side wall of transformer room and about five feet above floor in position as shown in sketch.
- 16 - represents 210 K. V. deep therapy X-Ray generator with double rectifying switch.
- 17 - represents deep therapy water cooling apparatus.
- 18 - represent bakelite insulators through partition between transformer room and deep therapy treatment room. These bakelite insulators pass through bakelite panels that will be furnished by Pengelly X-Ray Company. These panels are eighteen(18) inches square and come with holes drilled through which insulators pass. Your contractor should arrange to cut openings through partition and make frames to fit these panels. In the upper left-hand corner of plan #2 will be found detailed drawing of a section of wall through which these bakelite panels are to be fitted which illustrates the method of mounting same. Sketches of the panels and dimensions are shown. It will be noted that the panels should be mounted in side wall so that the holes in center of same will be exactly sixteen-16- inches below ceiling and that the panels must be mounted in the frame so that the two (2) inch holes are exactly thirty (30) inches from each other. Particular care must be taken to see that these panels are placed at exactly this distance from each other and below the ceiling in order that they will be in proper position for the high tension tubing aerial system which is to be mounted on brackets to the ceiling. Be sure that this is perfectly understood before proceeding with the work.
- 19 - represents high tension tubular aerial system in deep therapy room.
- 20 - represents deep therapy protection tube holder arranged to accommodate water cooled tube.
- 21 - represents patient's treatment table.
- 22 - represents stereoscope.
- 23 - represents steel filing cabinets.
- 24 - represents table or desk in office and plate study room.
- 25 - represents film display cabinet.



Fig.

- 26 - represents developing tank to be mounted on iron legs 16 inches above floor. The drain pipe for this tank should be 2 inches in diameter and should be placed close to floor so that the trap will operate satisfactorily in the space between bottom of the tank and the floor. In the upper left-hand corner of plan #1, a drawing will be shown illustrating method of installing hot and cold water for the developing tank. Both the hot and cold water pipes should be equipped with gate valves and should lead into a common mixing chamber. A thermometer should be installed in this mixing chamber in such a manner that the water flowing out of the mixing chamber must flow past the mercury in the thermometer. The pipe leading to the washing section of the tank which should enter the tank at the bottom should also be equipped with a gate valve. These valves, mixing chamber and thermometer should be approximately four feet above floor and directly back of developing tank shown as Fig. 26. Any plumber can make up this equipment using standard parts or an automatic thermostatic control with thermometer can be purchased direct from plumbing supply house.
- 27 - represent photo-light proof shutters made in two sections to cover window in developing room. These should fit tightly and 1/2 inch stop should be placed on window frames entirely around shutters. Where shutters meet in center, they should overlap at least 1/2 inch.
- 28 - represents work-bench and cabinet for films and supplies. Photograph is attached of such a work bench which is equipped with shelves and sections for supplies, also is equipped with a light-proof film cabinet. Detailed drawing giving all dimensions, showing the construction of this film cabinet with the various sections for the different size films is attached. This is stamped O.D. No. 29. We suggest that your workmen carry out the ideas as shown in this photograph. If additional information is necessary, write Pengelly X-Ray Company.
- 29 - represents film drying rack to be built in developing room in position as shown in sketch. This can be done at time X-Ray equipment is installed at which time service engineer making the installation will give your workmen complete details.
- 30 - represents automatic stereo plate changer in radiographic room.
- 31 - represents Bucky Diaphragm table equipped with tube stand and Bucky Diaphragm.
- 32 - represents insulators to be mounted in partitions between transformer room and radiographic room #1 as well as radiographic room #2. These insulators will be exactly 30 inches below ceiling. Care should be taken to keep pipes, conduits carrying electric wires or any other grounds at least a distance of 12 inches from where these insulators pass through partitions.

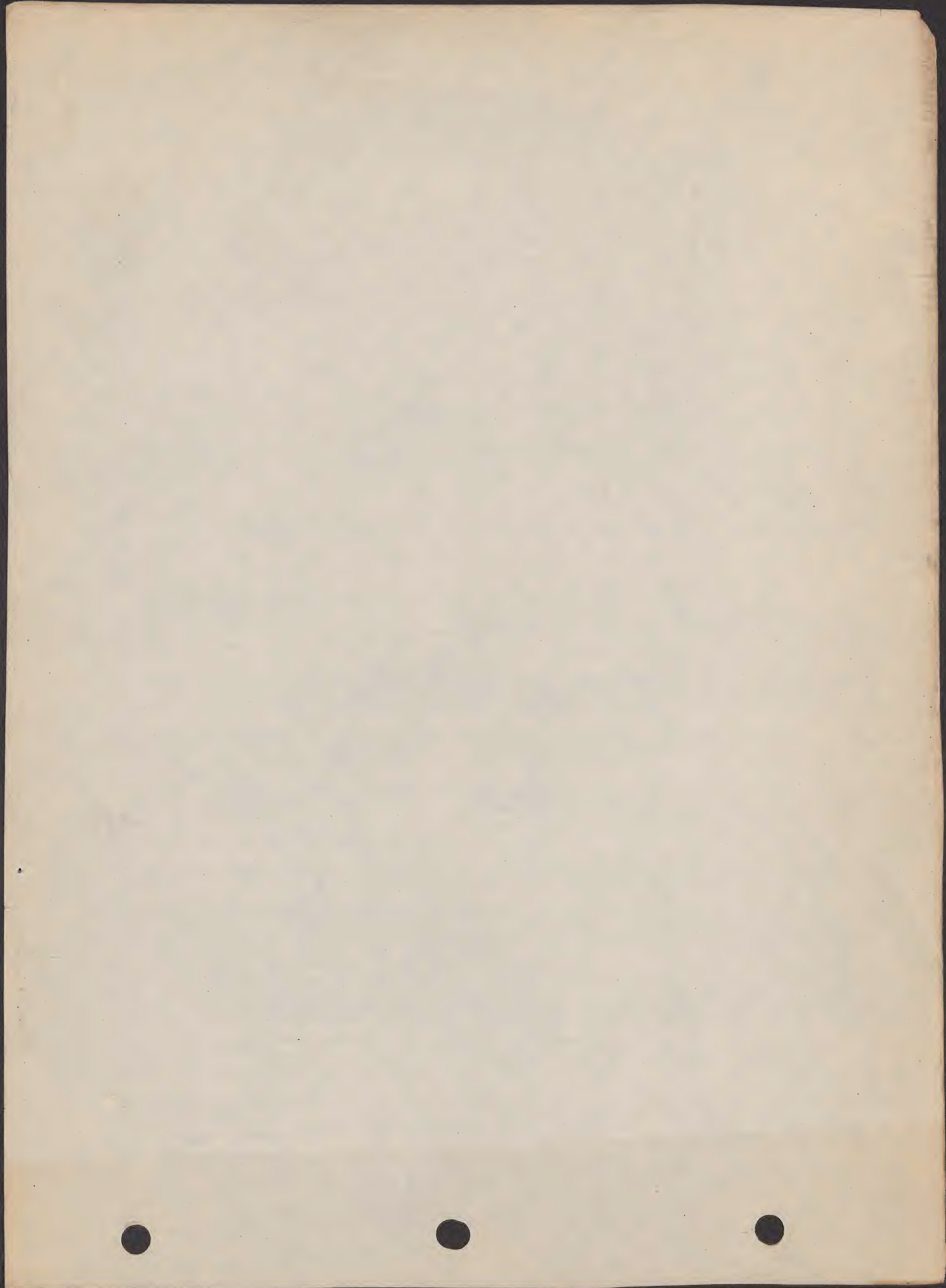


Fig.

- 33 - represents shock proof control table for radiographic X-Ray generator.
- 34 - represents window between control room and transformer room in radiographic department - bottom of this window should be 40 inches above floor. The frame should be made to accommodate double strength window glass three ft. wide and four ft. high.
- 35 - represents high tension coronaless aerial switch mounted in transformer room and attached to ceiling, arranged so that high tension as well as filament current can be switched to either radiographic room #1 or #2.
- 36 - represents 150 K.V. X-Ray generator with rectifying switch.
- 37 - represents Coolidge filament transformer to be mounted on shelf attached to side wall in transformer room as shown in sketch and approximately 6 ft. above floor.
- 38 - represents coronaless tubing aerial system in radiographic rooms.
- 39 - represents plain radiographic table with tube stand mounted on side rail.
- 40 - represents method of connecting hot and cold water so that temperature of same can be controlled and known before it enters developing tank.
- 41 - represents cross section of wall in deep therapy department showing method of installing bakelite insulators and bakelite panels, together with frame in which these panels are mounted.
- 42 - represents bakelite panels and frames, giving the distance from each other and from ceiling.

LEAD WORK

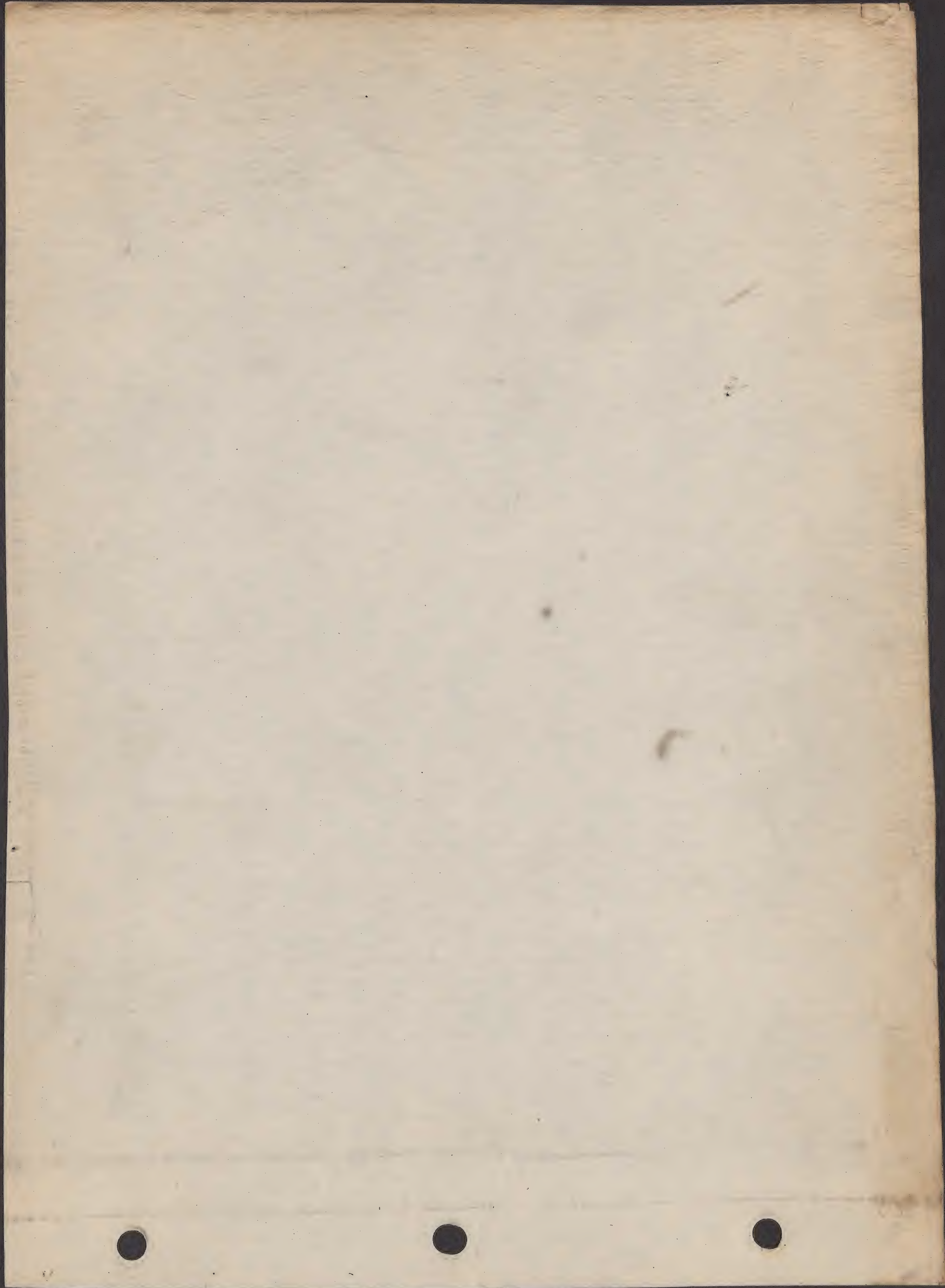
*Side walls of control room between radiographic room #1 and radiographic room #2 should be lead lined - lead of the approximate weight of two pounds to the foot is sufficient. The lead should reach from the floor to a point six ft. above the floor and should be carefully fitted over the doors. The doors should have openings cut in them in which leaded glass windows should be mounted. Size of the glass furnished will be 13 x 17 inches. The length of the glass should be in the horizontal plane. The lower edge of the glass when mounted in frame should be five ft. above floor. The developing room should be lead lined on the end facing radiographic room #2. Lead of the approximate weight of 2 lbs. to the foot is sufficient and should extend from the



(Lead work)

floor to a point six feet above the floor. It will be necessary to line only one of the doors in the entry of the developing room. The control room in the deep therapy department should be lead lined on the side facing the deep therapy treatment room. This should extend around the pillar and include the door. Lead of the weight of 2 lbs. to the foot is sufficient and should extend from the floor to a point six ft. above the floor. Lead should be carefully fitted around the door.

An opening should be cut in the door and framed to accommodate a leaded glass window 13 x 17 inches. The lower edge of the glass when mounted in the frame should be five ft. above the floor. The length of the window should be on the horizontal plane.



A
MODEL
LOADING BENCH
IN
XRAY DARK ROOM.

SEE SPECIFICATIONS
ON NEXT PAGE
FOR FILM BIN.

NOTE.

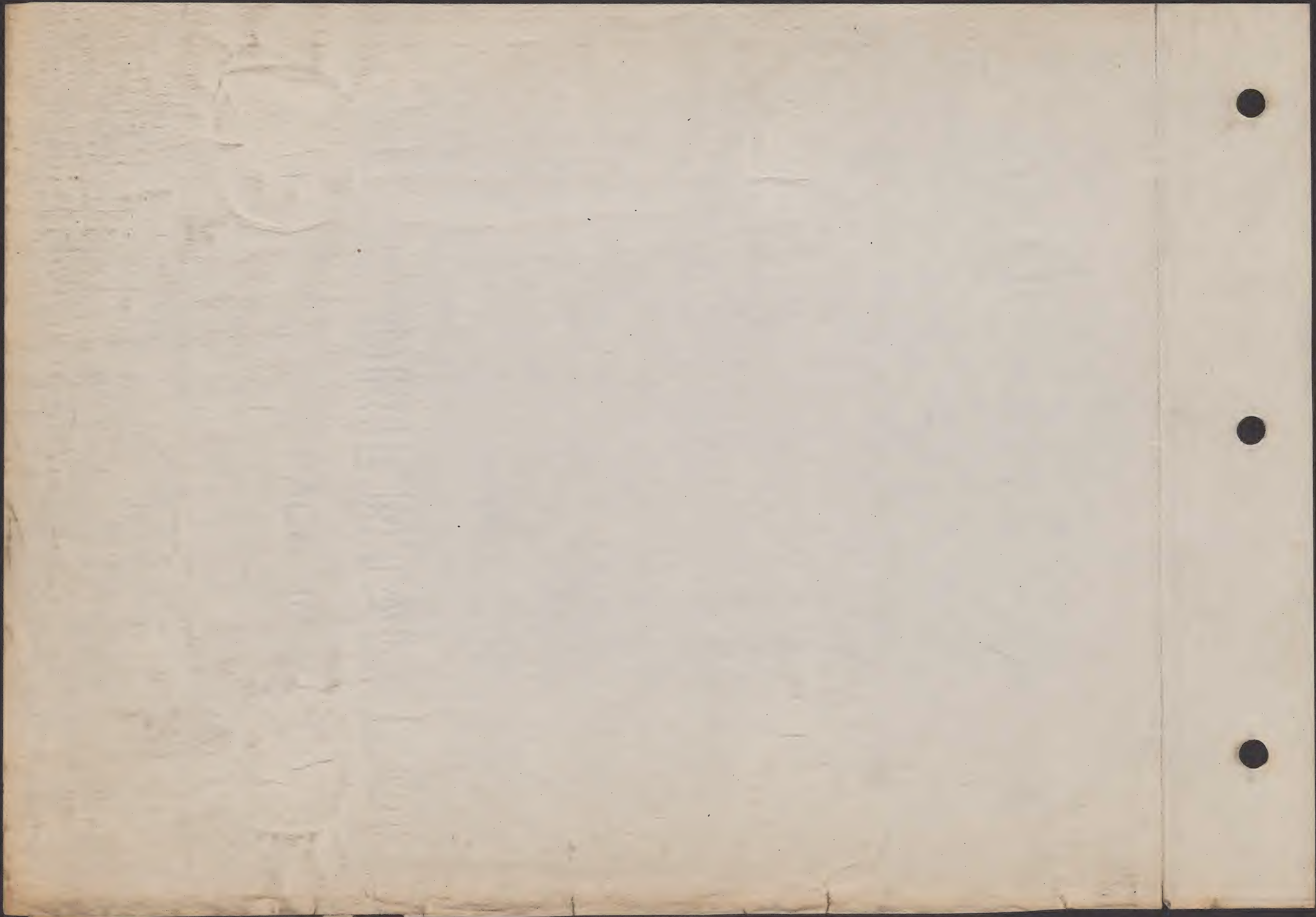
VENTILATION.

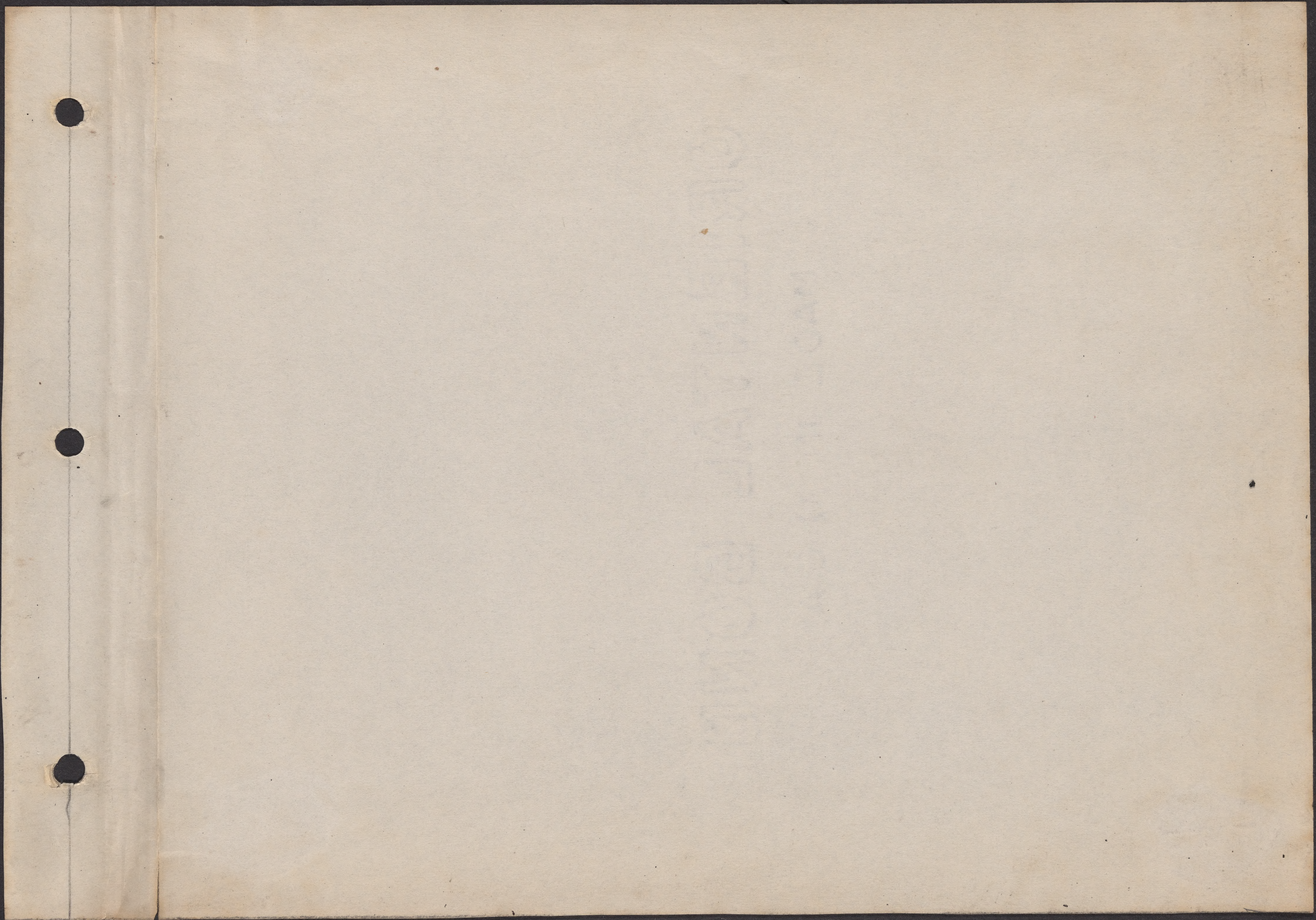
LIGHTING.

FILM BIN.

A PLACE
FOR EVERYTHING
AND EVERYTHING
IN PLACE.

WINDOW
TO PASS EXPOSED
AND UNEXPOSED
FILMS
TO AND FROM
LABORATORY
WITHOUT DANGER
OF FOGGING.





Western Hill in England

Mr. W. B. K. in England

